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ABSTRACT

This book offers a selection of 14 conference papers that present a variety of innovative partnerships for the preparation of teachers and school administrators. Part 1, "Teacher Preparation Partnerships," presents 4 papers: (1) "Ten Years of the Hawaii School/University Partnership" (J.P. Dolly, P.A. Whitesell, and A.P. Port); (2) "The Colton Cluster Project: A Pre- and In-service Teacher Development Program" (K.Z. Weed, R.A. Norton, and N. Norton); (3) "Preparing Teachers for Classrooms of Tomorrow" (B.J. Conaway, P.T. Sharp, and S.A. Schafer); and (4) "Teacher Fellows Program" (V. Resta). Part 2, "Partnerships in Science and Technology," includes 3 papers: (5) "Contexts of Technology Partnerships: Professional Development and Change" (C. Gunn); (6) "Project SIMULATE: Technology Staff Development for Inservice and Preservice Elementary Teachers" (J. Cleland, R. Buss, R. Zambo, K. Wetzel, and P. Rillero); and (7) "The Science Daze Partnership" (E. R. Offutt). Part 3, "Taking University Classrooms into the Schools," features 3 papers: (8) "Praxis--Translating Theory into Practice in a School-Based Teacher Education Program" (C. Fuhler and M. Sandhu); (9) "The Praxis Partnership: Reflections on a Field-based Program (C.J. Fuhler and L. K. Carey); and (10) "Bridging World Views: Professional Development for Faculty in a Site-Based Teacher Education Partnership (S. Markel). Part 4, "Other Partnerships in Education," includes 4 papers: (11) "The Denver Schools' Leadership Academy" (S. Ford, M. Martin, R. Muth, and E. Steinbrecher); (12) "Connecting with Schools for Improved Teacher Education" (M. H. Mosley); (13) "The Rural Multicultural Training Collaborative: A University-Local School Partnership" (P. J. Peterson and L.B.W. Montfort); and (14) "Challenges Involved in Creating and Maintaining a School/University Partnership" (J.C. Kern and K. Mason). A contributor list is included. (Most papers contain references). (SM)

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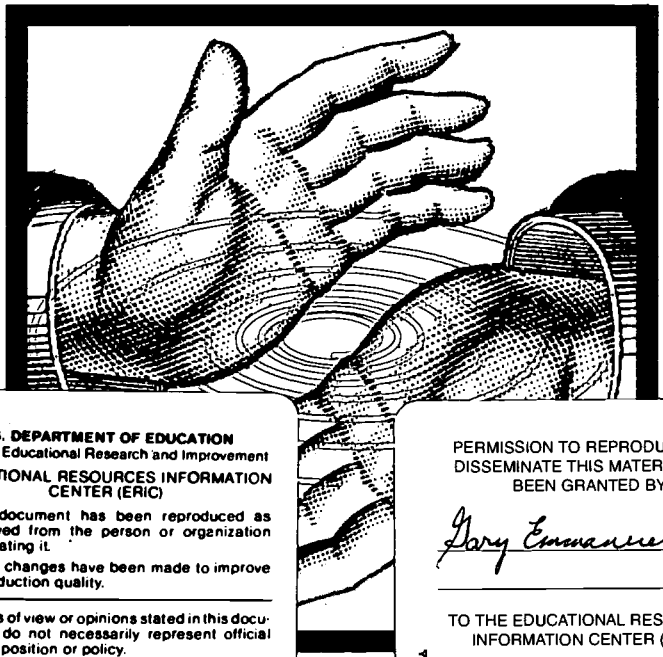
Partnerships in Education



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PREPARING TEACHERS FOR THE TWENTY-FIRST CENTURY

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NORTHERN ARIZONA UNIVERSITY

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PARTNERSHIPS

IN

EDUCATION

PREPARING TEACHERS FOR THE TWENTY-FIRST CENTURY

Jon Reyhner, Editor

CELEBRATING
NORTHERN ARIZONA UNIVERSITY'S
CENTENNIAL YEAR OF EDUCATION

FLAGSTAFF, ARIZONA
1997

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Partnerships in Education

Partnerships in Education: Preparing Teachers for the Twenty-first Century is the Proceedings of the "Connecting with Schools: The Rewards and Challenges of School Partnerships" Conference sponsored by Northern Arizona University's Center for Excellence in Education on October 15-17, 1997, at the University's du Bois Conference Center in Flagstaff, Arizona.

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Introduction

Colleges of Education are recognizing more and more that their students who complete the traditional on-campus teacher training programs with, at most, one practicum and one student teaching experience face major difficulties when they must handle thirty or more students all day, five days a week in their first teaching position. In order to give students more experience in the classroom under the supervision of trained teachers, Colleges of Education have developed a variety of partnerships with public and private schools where students take their classes in the schools where they will ultimately teach rather than at the college or university away from the realities of elementary and secondary classrooms. Likewise, university faculty are realizing that one-shot inservice activities for elementary and secondary teachers do little to change classroom practice. The fourteen papers in this collection describe sustained university-school partnerships designed to improve classroom instruction.

Northern Arizona University (NAU) has pioneered, along with other universities and colleges, a variety of partnerships with public and private schools to better prepare their students for the realities of the classroom. Three of NAU's partnerships are described in NAU's 1997 Center for Excellence in Education monograph *School-University Partnerships*. To further the interchange of ideas between Colleges of Education, NAU's Center for Excellence in Education hosted a "Connecting with Schools: The Rewards and Challenges of School Partnerships" Conference on October 15-17, 1997. This book is a selection of papers that were prepared for that conference. The papers described below present a variety of innovative partnerships for the preparation of teachers and school administrators.

Teacher Preparation Partnerships

"Ten Years of the Hawaii School/University Partnership" by John P. Dolly, Philip A. Whitesell, and Antonette P. Port describes a decade-long partnership of the University of Hawaii, the Hawaiian Department of Education, and the private Kamehameha Schools/Bishop Estate. This unique partnership incorporates the entire State of Hawaii through the State Department of Education and is engaged in collaborative work with John Goodlad's National Network for Educational Renewal. The paper describes the establishment of partnership activities, including administrator and teacher training components, and the labor-intensive nature of building a climate of trust and mutual support between schools

and the University of Hawaii.

"The Colton Cluster Project: A Pre- and In-service Teacher Development Program" described by Kathryn Z. Weed, Ruth A. Norton, and Nancy Norton chronicles the development and two years of implementation of the Colton Cluster Project, a professional development site partnership between California State University San Bernardino and the Colton Joint Unified School District. Two important factors in the project design, support and integration of theory and practice, are discussed both in the conceptual stage and throughout implementation. The roles and responsibilities of teacher candidates, resident teachers, and university faculty are presented and commented upon by the respective participants. Challenges and strengths identified in the first implementation year are presented along with adaptations and changes that were made in the second year of implementation.

"Preparing Teachers for Classrooms of Tomorrow" by Betty J. Conaway, Pat Tipton Sharp, and Susan A. Schafer describes the PARTNERS project, which was established in 1995 as part of Baylor University's Center for Professional Development and Technology. PARTNERS is a collaborative effort with P-12 schools and teachers to prepare future teachers for the classrooms of the 21st century that reflect the changing characteristics of P-12 students. The project has four major goals. The first is to increase the number and the quality of field experiences prior to student teaching; the second is to increase the preparation of teacher education students to use technology for classroom instruction; the third is to increase the preparation of teacher education students to work with multilingual and multicultural student populations; and the fourth is to implement a holistic, performance based assessment model in teacher education classes.

"Teacher Fellows Program: A Win-Win Partnership for Teacher Preparation, Induction and Professional Development" by Virginia Resta describes a unique collaborative university/public school program encompassing school-based preservice teacher preparation, new teacher induction, and professional development based on an innovative strategy involving the exchange of resources between the university and participating schools, resulting in no additional costs to the consortium partners. Teacher Fellows, fully certified teachers who are Southwest Texas State University (SWT) graduate students, serve as first year teachers in participating school districts. In exchange, master classroom teachers are released from classroom assignments to serve as mentors to the first year teachers. The short and long term benefits of the program and the challenges and opportunities encountered in its design and implementation are given.

Partnerships in Science and Technology

Cathy Gunn's paper "Contexts of Technology Partnerships: Professional Development and Change" is based on reaction to a 1995 Board of Director's report by the American Association of Colleges for Teacher Education (AACTE) that called for college of education faculty to pro-actively meet the challenge of new forms of professional development to address national political concerns in the United States as it effects K-12 school reform, teacher education, and universities. It describes a Northern Arizona University telecommunications, multimedia, and environmental education professional development partnership and discusses innovation efforts to address AACTE challenges.

"Project SIMULATE: Technology Staff Development for Inservice and Preservice Teachers to Improve Elementary School Instruction" by Jo Cleland, Ray Buss, Ron Zambo, Keith Wetzel, and Peter Rillero tells about a professional development program for inservice and preservice elementary teachers designed to provide knowledge and equipment for using multimedia simulations and language arts activities to improve science and mathematics instruction. Preservice undergraduates and their mentor teachers from a K-6 school, where a field-based program is already well established, developed instructional units focusing on conceptual development and process skills. Evaluation data indicate that the 60-hour summer instructional program coupled with monthly school year meetings produced significant increases in confidence in computer use, computer competency, personal efficacy, level of computer usage, and the variety of software usage.

"The Science Daze Partnership" by Elizabeth Rhodes Offutt relates how over the past four years several different institutions in the Birmingham area have joined to form a unique and successful partnership. This partnership promotes the K-3 Science Daze program that focuses on helping teachers overcome their fear of teaching science, familiarizing teachers with resources available to them in the Birmingham science community, providing students in grades K-3 with stimulating science experiences, distributing 30 proven hands-on science lessons to science educators, providing relevant hands-on lessons to teachers, and working with a targeted university teacher training program to provide support to better prepare their teacher candidates to teach K-3 science.

Taking University Classrooms into the Schools

"Praxis—Translating Theory into Practice in a School-Based Teacher Education Program" by Carol Fuhler and Malathi Sandhu

describes a teacher preparation program that is a cooperative effort of the Center for Excellence in Education at Northern Arizona University and two Flagstaff Unified School District schools—an elementary school and an adjacent middle school. Prior to student teaching, undergraduate dual majors (elementary and special education), as a cohort, spend three semesters observing, assisting, and teaching in classroom settings while being mentored by partner teachers and supervised and taught by university professors. Most teacher preparation courses are delivered by University faculty at the school site. This paper identifies the benefits and challenges for all participants in this innovative university-school partnership program.

"The Praxis Partnership: Reflections on a Field-Based Program" by Carol J. Fuhler and Linda K. Carey describes how Praxis students in one of NAU's field-based programs are learning that reflection is key to their personal growth and growth as future educators. The authors found over the last three years that a true field-based partnership is comprised of a community of life-long learners whose daily reflections catch them up in a continuous evolutionary process of change and growth.

Sherry Markel's "Bridging World Views: Professional Development for Faculty in a Site-Based Teacher Education Partnership" describes some of the complexities of the university-school partnership experience and how her partnership experiences have increased her awareness of the cultures of the elementary school, the partnership, and the university and of the differences between the university and elementary world views.

Other Partnerships in Education

"The Denver Schools' Leadership Academy: Problem-based Learning to Prepare Future School Leaders" by Sharon Ford, Michael Martin, Rodney Muth, and Ed Steinbrecher describes the Denver Schools' Leadership Academy, a two year partnership between the Denver Public Schools, the University of Colorado at Denver, and the University of Denver. This academy is a principal preparation program leading to state licensure. The program is conducted in a problem-based learning mode and allows students to integrate reading and class instruction with a great deal of on-site work in schools to deal with problems of practice. Portfolio development and assessment is ongoing throughout the program and is correlated to the Colorado Standards for School Principals.

"Connecting with Schools for Improved Teacher Education" by Mary H. Mosley describes how four central Arkansas schools and the University of Central Arkansas are implementing professional

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development in a collaborative program geared to improve teacher education. Their "Break-the-Mold" Teacher Preparation Program includes teachers, administrators, parents, school superintendents, university faculty, college-student interns, and administrators. During the past two years this partnership has implemented program activities to bridge the gap between theory and practice and has created a successful center of pedagogy and professional development.

"The Rural Multicultural Training Collaborative: A University-Local School Partnership" by Patricia J. Peterson and Lela B. W. Montfort describe the shortage of special education teachers, especially in rural areas that creates a problem for school districts working to provide quality education for culturally and linguistically diverse special education students. To help alleviate the shortage, NAU developed a U.S. Department of Education funded Rural Multicultural Training Collaborative. This four-year program was a training partnership in special education between NAU and local school districts in rural Arizona. It was a special field-based program providing training and experiences in multicultural education, rural education, and principles of special education inclusion.

"Challenges Involved in Creating and Maintaining a School/ University Partnership" by Jack C. Kern and Kim Mason describes the challenges involved in developing and maintaining a Master of Arts in Teaching program at the University of Arkansas. The program provides for a year-long public school teaching internship in K-12 physical education. The interns work with one lead teacher for a period of nine consecutive weeks before rotating to a different lead teacher at a different level.

I would like to express appreciation to the participants in the Connecting with Schools: The Rewards and Challenges of School Partnerships Conference sponsored by Northern Arizona University's Center for Excellence in Education. I especially want to thank the Conference's planning committee chaired by Dr. Gary Emanuel as well as Janet Reynolds and Lisa Luers who handled the day-to-day planning for the conference. This volume of papers represents a partnership of effort by conference organizers and participants. Partnerships in education, or for that matter partnerships in any field, require the cooperation of many people and many agencies to be successful.

Jon Reyhner
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The Hawaii School/University Partnership

John P. Dolly, Philip A. Whitesell, and Antonette P. Port

In 1986, the University of Hawaii helped establish the Hawaii School/University Partnership with the Department of Education and Kamehameha Schools/Bishop Estate. The partnership is unique since it incorporates the entire State of Hawaii through the State Department of Education. Kamehameha Schools/Bishop Estate is a private institution that is dedicated to furthering the educational aspirations of native Hawaiian children. The partnership has engaged in collaborative work with John Goodlad's National Network for Educational Renewal since 1986. The paper describes the establishment of partnership activities and the labor-intensive nature of creating a climate of trust and mutual support across schools and the University. It identifies areas where there were successes and areas where there are still some points of stress across the institutions participating. The innovative programs created as a result of the partnership are highlighted and used as examples to demonstrate the type of interaction and mutual support generated by partnership activities across the last eleven years in the State of Hawaii.

In 1986 the faculty of the College of Education at the University of Hawaii voted to pursue membership in John Goodlad's National Network for Educational Renewal (NNER). The faculty committed to developing formal partnership arrangements with public schools. Although the concept of a formal partnership and what it meant was not clear to the faculty or public school personnel, everyone wanted to change the ongoing arrangements that were failing to meet the needs of public school and university students. The only real commitment made was to change. No one knew what direction or shape the change would take. No one knew how powerful or successful the partnership would eventually become. According to Goodlad,

> There is little in the history of school-university relations to suggest that relation has served to solve tough, persistent problems. Often, the relationship has been self-serving, bypassing areas of mutual self-interest calling for give-and-take and joint inquiry. Schools, for example, have sought university-based consultants to help them do better what they already do. Universities have sought out teachers in schools to supervise their student teachers, and these "cooperating

> teachers" have passed along the conventional wisdom to their future colleagues. Neither the schools nor the teacher education programs have been fundamentally changed in the process. (1990a, p.2)

The Hawaii School/University Partnership (HSUP) was accepted into the NNER in October, 1986. The three educational institutions committed to the effort are the Hawaii State Department of Education (DOE), the College of Education (COE) at the University of Hawaii at Manoa (UHM), and the Kamehameha Schools/Bishop Estate (KS/BE), a private institution for native Hawaiian children. Although these institutions had prior working agreements, HSUP offered the first opportunity to formalize their collaboration as equal partners.

Hawaii is unique in that it is the only state that has a statewide unified school district with one state superintendent and a single higher education system where UHM serves as the major university of the state. KS/BE was the only private school involved in any of the partnerships in the national network. Other distinguishing features include the islands' multicultural setting, the strong presence of private schools, and the willingness of these educational institutions to experiment.

The common thread that brought members of the Hawaii Partnership together was an interest in addressing the needs of the educationally disadvantaged student—especially those considered to be at-risk. The DOE is seeking strategies to promote school success and prevent at-risk behaviors for all students. The University has an interest in working with the DOE's school renewal efforts as well as preparing educators for school renewal. In its commitment to address the needs of native Hawaiian and part-Hawaiian students throughout the state, KS/BE is also involved in various efforts to reduce the number of students identified as educationally at-risk.

All of these shared problems—and shared visions—led to the mission of the HSUP, which is to solve collaboratively the major problems related to the education of school-age youth in Hawaii, giving special attention to the educationally disadvantaged who may include at-risk and/or minority students. The HSUP also supports the national agenda of the simultaneous renewal of schools and the education of educators (Chang & Dolly, 1990). As part of the commitment to partnership activities, an executive director for partnership activities was hired early in 1987 with a support staff position funded by the members of the partnership.

The decision to join with the NNER involved committing for at least a five year period of time to a set agenda (See Appendix). It involved much risk on the part of schools and the COE. Both were trying to do new things that would fundamentally change the way they

looked and operated. Not all faculty in the schools or university were committed to this level of change. The original goals were simple at first. They were to re-establish formal linkages across the schools and the University, including formal collaboration and involvement of school personnel in University activities. There was a past history of work and collaboration across the three participants in the partnership. However, much of the cooperation and collaboration was at a surface level. The COE would place its students in schools and hire cooperating teachers to support its teacher education programs. Although there was cooperation and collaboration, none of it was designed to fundamentally change the participating institutions.

Once the HSUP was formally established, the initial problems centered around financial issues in terms of the schools committing financially to the partnership and the University making a long-term financial commitment of resources to support partnership salaries (the executive director, secretary, and office expenses) and travel money to involve faculty in work throughout the school systems and to connect with other partnership activities in other states. The initial meetings indicated a lack of trust among school personnel for university faculty. There was a feeling that the historical relationship was one of assessment, evaluation, and critique by University faculty of school personnel and their programs, and that historically University faculty did not wish to get involved directly in the activities of schools and had very little interest in hearing from school personnel about improving campus programs. In some cases, meetings went on for two to three years to establish formal curriculum and review committees to consider University programs. The meetings helped establish formal linkages with schools to develop new and innovative ways to address public school student and faculty needs.

The Administrator Cohort Program

A major breakthrough in formal relationships came when the faculty in Educational Administration at the University agreed to allow a committee to be established in which half the positions on the committee would be represented by school and district office personnel from the public schools with a charge to establish a new curriculum for a field-based program in Educational Administration. The faculty and school people met for almost two years to work out differences and develop a program that would meet the needs of the next generation of leaders in public education for the State and come up with a program that would be field-based, full-time, and academically rigorous. Having the district level personnel involved resulted in a program that was rigorous, requiring a commitment of time from those participating and having school personnel involved in the selection process of future candidates. Part of the commitment from the schools resulted in

candidates selected receiving their full salaries while enrolled in the graduate program at the University. The joint committee also served as a review committee for personnel involved in the program and as a curriculum restructuring committee to constantly upgrade and assess the quality of the program. As part of the commitment from the schools, a public school provided space for the program, its library, and courses so that all work could physically be made available within the public schools. This collaboration set a model that still exists in the State, creating very positive attitudes among administrators towards the University and connecting the University directly to the newest generation of administrators.

The Master of Education in Teaching Program

While the College and the DOE were redesigning the Educational Leadership Program, the faculty and DOE personnel interested in teacher education were jointly developing an innovative two-year master's degree program of integrated course work linked to continuous school experiences. This, too, took several years to design and implement. It has developed into the strongest teacher education program within the COE. The program currently enrolls cohorts of students with all course work offered on-site at the public schools, jointly taught by University and cooperating faculty from the schools. Students take integrated graduate level seminars on site at the schools. In the third semester they complete a closely supervised student teaching experience and complete the program with a semester of paid teaching internship. Students receive a masters degree and professional level certification upon completion of the Master of Education in Teaching (MET) program.

The Teachers of Minorities Program

Simultaneously, a group of faculty from the College and from KS/BE were developing an optional program within the B.Ed. in Elementary Education for teachers of minority students, particularly students of Hawaiian heritage. Under the auspices of the HSUP, this program quickly developed from simply alternative field placements for observation-participation to a self-contained, cohort program with a unique curriculum of courses integrated with continuous field experience in selected public partner schools and the Kamehameha Schools. These public schools were selected on the basis of enrolling a high percentage of Hawaiian pupils. Named the Pre-service Education for Teachers of Minorities (PETOM) program, this and the MET program became models for later innovations in the regular elementary B.Ed. program and the new Post-Baccalaureate Certificate in Secondary Education.

The first five years of the partnership demonstrated that the public schools and COE could work together in true collaboration. The mutual

support and opportunities to share information and link schools to other partnership sites were seen as critical for school renewal and restructuring.

The HSUP encouraged the COE to experiment with new formats and new programs. It supported conferences in which the COE faculty critiqued its curriculum, and it enabled faculty to get more directly involved in public schools. This involvement alone has created much good will and credibility toward COE faculty and the new teacher education and administration programs.

Recommitment

After intense discussion by the HSUP director and the Executive Board, everyone agreed that the first five years had been very successful and a commitment was made to sign a new memorandum of agreement to support another executive director for a five year term. In the original agreement, the executive director was to come from one of the three agencies (COE, DOE, KS/BE) and serve for five years. If the partnership was renewed, then a new director from the participants would be appointed. With changes at NNER and a redirection to emphasize change in the way teachers are prepared, the COE, with strong support from the membership of the HSUP, decided to pursue becoming a pilot site in the newly restructured NNER.

In 1992, the NNER was reorganized as 17 pilot sites including 25 teacher education institutions and over 300 partner schools. Again, the COE applied and was accepted as a pilot site. The pilot sites recommitted themselves to the renewal agenda and to a broad definition of the mission of public education: preparing citizens for a democratic society; nurturing the intellectual, social, and emotional growth of students; providing equal educational opportunity for all students; and assuming responsibility for the quality of our schools. Goodlad (1990b) describes these as the moral dimensions of education.

In addition, the NNER placed increased emphasis on the inclusion of university faculty from the colleges of arts and sciences in teacher education and school improvement. Clearly the NNER agenda coincided with the long-established mission and collaborative work of the COE. The NNER has continued to provide its services, support, and opportunities for networking. This commitment was made for another five years and expired on June 30, 1997. A new agreement between the COE and the DOE has renewed HSUP for 1997-1998. However, because of changes in public policy by its Board of Trustees, KS/BE has not continued its participation in HSUP. The continuing commit-ment of HSUP is the support of teacher education and school renewal.

The NNER does not attempt to influence or control the operations or policies of the COE beyond this broad commitment. It does ask participants to demonstrate how they are pursuing the agenda and mission and to evaluate their progress in an annual report.

Membership in the NNER costs the COE nothing directly and offers considerable benefits. The COE pays no dues to NNER. It pays nothing for consulting and participation of NNER staff in Hawaii. The NNER pays its own travel and per diem. In addition, the NNER helps fund the attendance of faculty, teachers, and principals at national NNER meetings and programs. Over the past eleven years the NNER has put more than $150,000 into supporting this pilot site.

Note that it is the COE and, through the COE, the DOE and its partner schools that are members of the NNER. It is not the HSUP office that belongs to NNER. Although HSUP is not formally the representative to the NNER, it continues to function as the primary catalyst for positive change across the participants.

Current Activities

Partner Schools

The key components of the renewed partnership and the commitment made to NNER focused on establishing professional development schools. The COE also committed to restructuring its teacher education programs to have them field-based and to admit students in cohort groups. Development of partner schools began in 1991 with the implementation of the Masters of Education in Teaching (MET) program. Currently, there are five MET partner schools (two elementary and three secondary). Beginning in their seventh year, teachers, principals, and college faculty are engaged in collaborative planning for teacher education students and in action research projects.

Eight elementary school sites were nurtured into the partnership with the implementation of the elementary cohort program in Spring 1995. An additional 22 sites have developed for the Fall 1997 semester. Another partner school has been established for an in-service M.Ed. in Middle Level Education, and several secondary schools are participating in the new secondary post-baccalaureate program, bringing the total to 40 schools. Teacher education courses and seminars are being conducted on-site. Classroom teachers are developing mentoring skills and share responsibility for the growth of teacher education students with the college faculty. College faculty often provide demonstration lessons and, in so far as resources permit, staff development sessions for mentor teachers on topics generated by the teachers themselves.

HSUP has been involved in selecting and developing partner schools. Sometimes this process entails a series of informational meetings with various audiences. Through these meetings, schools are invited to express an interest in becoming a partner school. Follow up discussions on-site are scheduled with teacher education program

faculty. In other cases, partner schools have been built on existing collaborations between COE faculty and individual classroom teachers.

Hawaii Leadership Associates Program

Hawaii has established its own Hawaii Leadership Associates Program (HLAP) based on the model developed by NNER. The NNER program brings together representatives (faculty, teachers, principals, and so forth) to spend a full week in intensive seminars and discussions around critical issues in public education. They meet four times per year. Each participant gets to visit other sites around the country and must complete a project of local interest. This immersion experience was so positive, Hawaii decided to develop one for its educators.

Ten educators from Hawaii have become leadership associates in the NNER Associates Program since 1992. This group, in turn, developed the Hawaii Leadership Associates Program that began in December of 1995. There are now 42 Hawaii associates, including educators from the COE, the Colleges of Arts & Sciences, and public schools. The program is designed to address two major needs in our educational system: 1) the simultaneous renewal of schools and the education of those who work in them and 2) the design and development of educative communities.

During the course of the program, the Hawaii Associates will:

- Develop an understanding of the moral dimensions of teaching-access to knowledge;
- Enculturation into a political and social democracy, pedagogical nurturing, and stewardship of schools;
- Establish collegial connections and collaborate with teachers, school principals, arts and sciences faculty, and education faculty toward the renewal of schools and the education of educators;
- View educational change as a constant and become effective advocates within their institutions. Such change would include participating in curricular and program renewal; and
- Conduct inquiry into the nature of simultaneous renewal that focuses on successful learning for every student.

Associates come together as a cohort, engaging in dialogue, conversations, and reflective activities for four intensive sessions during the year. A new HLAP cohort is planned for 1997-98.

Arts and Sciences Partners in School Renewal

This project recognizes the need for Arts and Sciences faculty to become familiar with the culture of schooling and become grounded in field-based experiences for meaningful collaboration to take place. The

HSUP has initiated dialogues and planning sessions with the Associate Dean for Academic Affairs, the Deans of the Colleges of Arts and Sciences (there are four at UHM), and interested faculty to develop a process for bringing Arts and Sciences faculty into the public schools. Over twenty-five Arts and Sciences faculty members have indicated interest in working directly with the public schools. School representatives have expressed needs to improve school curriculum. A process to match partner school needs with Arts and Sciences faculty expertise is evolving. Funding from the DeWitt Wallace Grant administered through the NNER supports this project.

Center for Educational Innovation

In the Omnibus Education Act of 1994, the State Legislature requested that the University of Hawaii at Manoa establish a "Center for Teacher Education and Partner Schools." However, no initial funding was provided. Making the Center an operational unit within the COE requires a planning and development process that includes all players: the COE, the DOE and partner schools, and the Colleges of Arts and Sciences. A committee has been established to define the mission and function of the Center. The Center has been tentatively renamed the Center for Educational Innovation to give it a wider scope. Preliminary discussions indicate that at least part of the mission of the Center will be to foster and encourage research and inquiry on teaching, learning, professional education, school restructuring, and educational reform. The Center will actively promote the integration of research and educational practice by bringing school principals, teachers, and university faculty together to work on grants and research projects.

The other major aspect of the Center as stipulated in the legislation is to link school renewal with reform of programs for the education of educators. This kind of simultaneous renewal can only occur in collaborative arrangements with university faculty and school personnel. The Center will assist in the development of school partnerships with the aims of professional education reform, professional development from pre-service to advanced levels of performance, and school renewal. The 1996-97 state legislature provided $75,000 to support establishment and operation of the Center. The HSUP is applying for matching funds from an NNER DeWitt Wallace grant.

Seeking Alternative Funding Support

HSUP is placing increasing emphasis on seeking grants. In 1995, a proposal was developed and submitted for a federal grant under the Secretary's Fund for Innovation in Education. The proposal entitled "Developing Exemplary Sites for the Education of Educators and School Renewal" sought funds to establish four partner schools for the

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implementation of the elementary cohort program. The proposal was not funded. However, developing the proposal provided the elementary teacher education faculty with the opportunity to collaborate on an implementation model for this field-based program.

A proposal was also written for a Goals 2000 Local Reform Professional Development grant. This proposal requested planning funds for the development of the Center for Teacher Education established by the 1994 legislature. This proposal was not funded. However, HSUP has applied for a 1997-98 Goals 2000 grant to support staff development in partner schools.

The National Network for Educational Renewal received a grant from DeWitt Wallace-Reader's Digest to administer incentive awards to its pilot sites. Each of the NNER settings was eligible to receive up to $125,000 over a two year period, provided the setting was able to acquire matching funds from internal and external sources. The HSUP's request for $50,000 was approved and commitments of matching funds were received from the UHM and the DOE. The award amount of $150,000 has allowed HSUP to: 1) support the involvement of Arts and Sciences faculty in school renewal activities; 2) conduct dialogues and retreats to bring the appropriate individuals together to define and develop the Center for Educational Innovation; 3) support the development of partner schools; and 4) support the Hawaii Leadership Associates Program.

Services to COE Faculty and Teachers in Partner Schools

Over the past eleven years, participating in the establishment and development of partner schools has emerged as the primary activity of the HSUP staff. Partner schools are the crucibles in which teacher education and school improvement come together. They are the critical links between the COE and the DOE. HSUP staff are prepared to support COE faculty, classroom teachers, and principals working in partner schools in a variety of ways. Some of these are listed below, and others will emerge as new issues, needs, and problems arise:

1. Facilitate and participate in the identification and development of partner schools across COE programs.
2. In conversations with teachers, describe the role of a partner school from a program, state, and national perspective.
3. Facilitate the development of policies and procedures at the district, state, and university levels that will support partner schools. Through the HSUP executive board, the executive directors have direct access to the leadership of the member institutions.
4. Help organize and fund teacher planning and staff development sessions.

5. Facilitate conversations between faculty of partner schools.
6. Offer membership in the Hawaii Leadership Associates Program.
7. Participate in problem-solving at the school, program, and district levels.
8. Involve faculty from the colleges of arts and sciences in school improvement.
9. Link faculty and teachers with their counterparts in other partnerships in the NNER.
10. Bring NNER staff to Hawaii to talk and work with local schools.
11. Fund limited travel to national and regional conferences and other NNER sites.

Expectations for Partnerships

The level of involvement in teacher education varies considerably between partner schools. There are, however, certain basic conditions that are important in an effective partnership. Following are conditions that the HSUP attempts to establish and support in a partner school:

1. The principal and a majority of faculty make a commitment to teacher education as one element of their school's mission.
2. A number of teachers agree to work directly with COE students. HSUP recommends a minimum of six students at a school.
3. The school administration supports the commitment of teacher time to participation in teacher education.
4. The school provides space for student meetings and education courses.
5. The school is involved in self-improvement and provides a climate for educational change.
6. COE faculty and students collaborate with school staff in school improvement to the extent that resources allow.
7. The teacher education curriculum and the school curriculum are inter-related.

Advantages of Membership in NNER

Many of the improvements in COE teacher education programs since 1984 grew out of long-standing concerns and visions of COE faculty and DOE personnel. However, participation in NNER and the creation of the HSUP has focused and shaped those visions and

facilitated the development process.

Concepts

The major concept derived from NNER is the imperative of the simultaneous improvement of teacher education and school renewal through partnerships between teacher education programs and entire public schools; one cannot flourish without the other. COE programs have long included limited school experience in individual classrooms, but the NNER agenda has encouraged expanding and deepening that connection.

A second influential concept is that of the moral dimensions of teaching. That is, that the profession of teaching demands a commitment to ethical principles that transcend teaching basic academic skills and maintaining order within groups of young persons. Although teachers and teacher educators usually have a vague commitment to such principles, they rarely articulate and examine them. NNER has provided a forum where that takes place.

A third concept that has resulted in developments in Hawaii is the importance of involving arts and sciences faculty in school improvement and teacher education. We have created the arts and science partners project and included arts and science faculty in the Hawaii Leadership Associates Program. In addition, the associate dean of the Colleges of Arts and Sciences has participated actively in strengthening the connections between education programs and arts and science programs.

Connections

Through dialogue and shared experiences with faculty, teachers, and principals from 16 other NNER sites across the country, local educators have been able to expand expectations, compare Hawaii's programs, and learn from the problem-solving experiences of others. This has been possible because NNER members are thinking from a highly congruent set of values, philosophies, and goals. Therefore discussion of serious educational issues takes place at a much deeper level.

Participation of NNER Staff

Hawaii educators have benefited from the direct participation of NNER staff in a variety of activities here. These have ranged from public addresses by John Goodlad to Dick Clark leading a two day community-building conference at Kailua High School. Visitors have included senior NNER associates Wilma Smith and Ken Sirotnik and a number of national associates. John Goodlad shared his philosophy and visions with Hawaii educators and policy makers again in January, 1996, and three other senior associates participated with the Hawaii Associates during the spring semester.

Outcomes

It is clear that participation in the NNER has contributed significantly to improving the quality of teacher education and thereby the quality of schooling in Hawaii. Surely some of these improvements would have taken place without the involvement of NNER, since all real and lasting change arises from the vision and work of those who implement it. However, these improvements would not have occurred as rapidly, or been as far reaching, as well planned, or as well supported without NNER.

Establishing partnerships that will eventually lead to the development of professional development schools has been the result of a long-term commitment of faculty and their willingness to give up and share authority over their own programs. This is easier said than done, and in many instances, there is a great deal of resistance. The Hawaii experience demonstrates that there is a need to establish formal partnership links and create a sense of trust and ownership in programs before a partnership school or a professional development school can emerge. The Hawaii example shows that meaningful and substantial partnership activities can lead to the development of professional development schools, but without the partnership as the underpinning support mechanism, it is doubtful that the partnership schools can function long-term. The history in Hawaii has shown that where the University has maintained its involvement in schools, those schools have evolved and developed into outstanding clinical sites where both teachers and students are renewing the curriculum and renewing themselves. The experience in Hawaii has also shown that when the University has withdrawn resources, especially personnel, from schools, in some instances schools have reverted to practices of past years, abandoning much of the creative and innovative work of school renewal and school restructuring that had started with partnership activities.

Some of the more positive outcomes for the University have been relevant programs in both teacher education and administrator preparation. Programs that are field-based provide teachers and administrators in the State an opportunity to learn practices that will help address local needs and local problems. The study of theory and the philosophy is as rigorous as in any other program, but the applications are real and tied to authentic situations in the local schools. Another positive outcome has been the close collaborative relationships developed with teachers and administrators. This has provided the COE tremendous political support and influence in the State. It has also provided the COE the opportunity to shape the next generation of teachers and administrators and to directly influence school renewal and restructuring activities in the State. The partnership has allowed the COE to directly introduce new ideas and new concepts into partner schools and to engage teachers in adapting these to their settings. For the schools, being linked with the

University has given them added prestige and easier access to new information and knowledge. Many of the teachers and principals participating have had an opportunity to attend national meetings in other states and work directly in other partnership schools at other sites around the country. This has helped many of the teachers in the State develop a professional identity with their colleagues, with the teaching profession, and with the University.

Issues

There have also been issues that have emerged that can and must be addressed for partnership and professional development school activities to continue in the State. Because of their sheer numbers, there are often more school people involved in COE activities than University personnel involved in school activities. This has led to a perception on the part of some faculty of a disproportionate involvement of school personnel in both curriculum and policy issues in teacher education while University people have very little impact on district policy or curriculum matters. Although the University faculty have had a moderate impact on local school matters, State-wide policy has not been directly influenced. Another problem is the real financial burden placed on the COE in committing dollars and personnel time to working directly with the schools. Recent cuts in budgets and personnel have further stressed University faculty, reducing the number of people available to support in-school activities and district level activities. Many faculty feel torn between their commitments to schools and their lack of contact with graduate students and other colleagues on the University campus. A question that the University is currently being forced to ask is can it continue to maintain and support its current activities with declining budgets and lost positions? A related question is how much can a single university do with limited faculty? Will the university recognize service activities in schools towards teaching load and/or research for those faculty participating?

Ironically, a final dilemma has been that in seeking to establish partner schools, the College has occasionally found itself with an abundance of riches. More elementary and secondary schools have expressed an interest in forming partnerships than the teacher education programs and limited COE faculty can accommodate. In a few cases, after initial presentations and discussions with teachers and principals, a school has said, "We're ready. When do we start?" And the College has had to reply, "We're sorry, but we do not need your school at this time." HSUP has usually been the avenue of communication in this situation. We have found that this message must be given with great care lest a school perceive that it is being rejected in favor of another or because of some internal flaw when in fact it is a matter of logistics. We have found it most effective to be completely candid and to assure the

school staff that we wish to include them in the program as soon as possible, either through increased enrollment or through rotation with other partner schools. In summary, the major problem facing the Hawaii partnership programs is common to most partnership programs in the NNER and across the country: how to establish and maintain adequate resources. Resources to support increased university teaching loads; to support collaborative, school-centered research; to support planning time for teachers; to support school staff development; and to support site coordinators.

Looking Ahead

The HSUP will complete eleven years of service in June, 1998. This year decisions will be made concerning its continuation and future organization. One of the concerns expressed by John Goodlad while visiting the Hawaii site is the extent to which the concept of the moral dimensions of teaching and the basic conditions necessary for an effective teacher education program have "penetrated" the thinking and activities of university faculty. Despite partnership activity across four teacher education programs and over forty schools, there is evidence that the basic principles of the NNER (which are, in fact, basic principles of high quality teacher education) are not widely understood or considered beyond the portals of the dean's office.

The co-directors of the HSUP, Ann Port and Philip Whitesell, in turn, have been concerned about the extent to which COE faculty understand and support HSUP itself. Therefore, during the spring of 1996, they conducted a series of conversations with faculty in departmental or program groups concerning the missions, activities, and alternative futures of HSUP. Supporting written materials and a survey were distributed to every faculty member in the College. Summarized briefly, the conclusions drawn from this process were:

1. All faculty believe that partnerships with public schools are essential to successful pre-service and in-service teacher education and should be continued and expanded.
2. Almost all faculty are either involved in some partnership activity or are interested in doing so.
3. About 66 percent of the faculty believe the HSUP has an important and useful role in facilitating partnerships and should continue its work. Twenty-two percent were undecided.
4. About 81 percent believe the College's affiliation with NNER is beneficial and should be continued.
5. There was less agreement about the most effective future organization of HSUP. However, a plurality (45 percent) favored bringing HSUP within the administrative

> structure of the College, perhaps through the proposed Center for Educational Innovation. Based on an analysis of their experience, the co-directors agree that this may be a means of making HSUP a more effective change agent within the College.

In conclusion, it is clear that school renewal and improved teacher education through partnership programs will continue to be a major endeavor of the College of Education and the State Department of Education and that the Hawaii School University Partnership will continue to play an important role in that process, perhaps as a different organizational unit.

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Appendix

School-University Partnerships: Minimum Essentials

Concept. A school-university partnership represents a planned effort to establish a formal, mutually beneficial inter-institutional relationship characterized by the following:

- Sufficient dissimilarity among institutions to warrant the effort of seeking complementarity in the fulfillment of some functions.
- Sufficient overlap in some functions to make clearly apparent the potential benefits of collaboration.
- Sufficient commitment to the effective fulfillment of these overlapping functions to warrant the inevitable loss of some present control and authority on the part of the institution currently claiming dominant interest.

Purposes. The intent is to create a process and an accompanying structure through which each equal party to a collaborative agreement will seek to draw on the complementary strengths of the other equal parties in advancing its self-interests. Each partnership is a means to this end—and not an end in itself. There are three central purposes :

- The exemplary performance by universities of their educational responsibility to those seeking to become educators or to enhance their present performance as educators. (Increasing the usefulness of the university research function is a major part of this responsibility.)
- The exemplary performance by schools of their educational function and the accompanying exemplary performance of school districts in providing the necessary support.
- The exemplary performance of both universities and schools (and their school districts) in collaborative arrangements and processes that promote both of the above purposes.

Agenda. The agenda grows out of fulfillment of the above purposes. It must not be allowed to grow out of preoccupation with sustaining a partnership for its own sake. Nor is the partnership to be the vehicle for solving all of the problems of schools or all of the problems of preparing educators for the schools. Rather, the partnership is to be used as a device for bringing together institutions that need each other for the solution of tough problems.

The agenda grows out of mutual institutional sensitivity to those problems that have largely resisted previous attempts to resolve them, whether mounted by single institutions or institutions in unison. The specifics will change but the following emerge as hard-rock problems worthy of concerted attention and action:

- The creation of exemplary sites in which future teachers are educated that demonstrate the best we know about how schools should function. The creation of internships and residencies for educational specialists (including administrators) through which these professionals may observe and gain experience with the best possible educational practices.
- The development of curriculum that truly reflect the best analyses and projections of what young people need.
- The assurance of equal access of students to these curricula.
- The cultivation of site-based staff development activities designed to foster continual school renewal, particularly of the curriculum and accompanying pedagogical practices.
- The restructuring of schools to assure increased continuity in student's programs, decreased accumulation of partial and inadequate or misdirected learnings, decreased alienation of students, and more effective utilization of varied teaching resources, including technology.
- The continuous infusion of knowledge relative to provision of good education in schools and in programs preparing educators.
- The creation and utilization of opportunities to promote in the community a continuing informed dialogue about what education is and why it has more to do with the welfare of both individuals and society—than the preparation for jobs.

Structure. Although there probably is no best way to organize school-university partnerships, experience and careful thought suggest at least these minimum essentials (or their equivalents) for structuring each partnership:

- A governing board composed minimally of the superintendent of each collaborating school district and the dean(s) of the participating school(s) or college(s) of education.
- A modest secretariat composed of an executive director reporting to the governing board and charged with performing both leadership and management functions, and necessary support services provided by a secretary and, desirably, a research assistant—all paid from the partnership budget.

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- An operating budget providing both money and specifically assigned personnel from participating institutions. (N.B.: Should any institution volunteer to provide for the executive director, for example, it must be clearly understood that this person reports directly to the governing board in performing partnership functions, not the institution contributing this resource.)
- Top-level endorsement and support from the cooperating university's chief executive officer and, ultimately, university involvement beyond the school or college of education.
- An orderly process within each partnership of authorizing and monitoring all projects and activities undertaken in the partnership so as to assure widespread understanding and a minimum of bureaucratic procedures and control.
- An ongoing effort to document, analyze, and communicate successes and failures and possible reasons for success and failures (preferably through designating and supporting an individual to take the lead in assuring that the gathering of relevant data is built into the functioning of the partnership).
- The establishment and maintenance of connecting linkages with the National Network for purposes of giving help to and receiving help from other partnerships in the Network.
- A deliberate effort to secure additional funds from external funding sources (particularly those in the state or region).
- The redirection of existing funds within and across institutions for purposes of securing the time necessary for education renewal.
- A formal time commitment of at least five years.
- Arrangements for sharing information, ideas, and even resources within and across partnerships, including the sharing of responsibility for advocating the best in educational policy and practice.

National Network: Minimum Essentials

In the same vein, a set of minimum essentials is proposed for a network of school-university partnerships focusing on educational renewal:

- Exchange of ideas, practices, information, and personnel among partnerships.
- Provision of data and analysis of experiences for purposes of contributing to our knowledge about change and improvement.
- Task forces addressing common self-interests.

- A communications network among partnerships.
- Support from the Center for Educational Renewal in the form of consultants, exchange of information (newsletter), organization of task forces, periodic meetings and conferences, networking of expertise, and assistance in securing supplementary funds.
- Use of the totality of the National Network for Educational Renewal in advocating the importance of education and sound educational practices and policies that support renewal, not just periodic efforts to upgrade the delivery system.

The Colton Cluster Project: A Pre- and In-service Teacher Development Program

Kathryn Z. Weed, Ruth A. Norton, and Nancy Norton

This paper is a description of the development and two years of implementation of the Colton Cluster Project, a professional development site partnership between California State University San Bernardino and the Colton Joint Unified School District. Two important factors in the project design, support and integration of theory and practice, are discussed both in the conceptual stage and throughout implementation. The roles and responsibilities of teacher candidates, resident teachers, and university faculty are presented and commented upon by the respective participants. Challenges and strengths identified in the first implementation year are presented along with adaptations and changes that were made in the second year of implementation.

Within the first five years of teaching approximately 50% of teachers leave their classrooms (Smith-Davis, 1991). We believe this is owing partly to their unexamined expectations of what is involved in being a teacher and their unfamiliarity with the nature of schools and the students they will meet. In addition, once in the school, there is little systematic support for the beginning teacher. Through close collaboration among district personnel, the cooperating schools in the Colton Joint Unified School District, and the cluster faculty from the Department of Elementary/Bilingual Education at California State University San Bernardino, the Colton Cluster Project combines the knowledge and abilities of the university faculty and the school personnel, places teacher candidates in a school for a complete academic year of preservice preparation, and then supports them in their first year of teaching. Such a program, we believe, helps new teachers be better prepared both academically and emotionally for the classroom.

This paper describes the evolution of the Colton Cluster Project. It provides the demographics of the district and the university, discusses the development of the project and the goals that emerged from that planning, and details the design of the program. Then a summary of the results of a survey conducted at the end of the first year of implementation is presented followed by changes and strengths carried into the second year. Lastly, a few concluding remarks are given. The major focus of this paper is on the preservice component of the project.

The first year of implementation was 1994-95. Ten students (called candidates) entered in the fall and eight completed the preservice year.

Of these eight "Cohort A" candidates, seven were hired as interns and one elected to student teach in their second year of the project. As of this writing, all eight are still teaching. During the second year of implementation, 1995-96, twenty candidates (Cohort B) entered with seventeen completing the preservice year. All seventeen have been hired as interns. It should be noted that this project has been carried out with no external funding.

Demographics

The Colton Joint Unified School District is a K-12 district that covers a wide geographic area with several municipalities. Of the approximately 11,311 students in grades K-6, 60% are Hispanic, 26.7% European-American, 9% African-American, and 4.3% Asian, Filipino, American Indian, and Pacific-Islander. Sixteen percent of the students are designated non- or limited-English proficient. Of the 389.5 K-6 teachers in the district, 79.6% are European-American, 16% Hispanic, 2% African-American and 2.3% Asian, American Indian, and other. The teachers' average length of service is 15 years. During the 1993-4 academic year, 84 new teachers were hired; in 1994-5, 103; in 1995-6, 103; and in 1996-7 the projection is for 142 new teachers. The Colton District is representative of southern California in its diverse student body and its need for teachers who can work with that diverse population.

California State University San Bernardino is a commuter campus and serves a large population of non-traditional aged students (52% 25 years of age and over). The majority of students in the elementary teacher preparation program are returning students who have job and family responsibilities. This population is predominately European-American (approximately 79%) with 15% Hispanic, 4% African-American, and 2% Japanese, Filipino, and American Indian.

Project Development

The Elementary/Bilingual Department had already collaboratively planned, using the Holmes Group report (1990), and implemented a Professional Development Site (PDS) in another district. That project was in its second year of operation when planning began for the Colton project. That PDS is an intensive 5-day a week program that includes work in elementary classrooms and on-site university courses. It extends the entire district academic year (end of August through mid-June). Two of the faculty who were involved in the first project became members of the Colton Cluster Project team.

The Colton Joint Unified School District and the university had also previously collaborated on numerous projects involving the professional development of teachers: AmeriCorps in which volunteers trained in literacy and numeracy techniques by university personnel

work in kindergarten classes; the California Early Literacy Learning project in which classroom teachers explore literacy issues and reflect on their personal development as early literacy teachers in guided meetings facilitated by a university liaison; Reading Recovery in which training by university staff has resulted in extensive implementation in district schools; and the regional Beginning Teacher Support and Assessment project in which district teachers learn mentoring techniques and new teachers are being supported.

With this history and knowledge of teacher preparation, the university and the district decided to enter into a PDS collaborative effort. In the planning, the university team considered two main factors: 1) that the project support people who had family and work considerations and continue that support from their preservice into the first teaching year and 2) that there be integration of teaching and learning theory and practice in a collaborative environment with the district.

Support: The intensive schedule of the first PDS makes it almost impossible for working students to participate. In addition, one of the needs of newly-credentialed teachers is a support system during that first critical year of teaching. Most often there is an immense break between the support and learning community provided in preservice education and the isolation of first year teaching (Brooks, 1987; Huling-Austin, 1990; Huling-Austin, Odell, Ishler, Kay, & Edelfelt, 1989). Thus two critical features for the program included a gradual induction into teaching during the preservice year, allowing some time for students with family and work commitments, and continuing support during the first year of teaching.

Integration: Integration of theory and practice necessitated an examination of the philosophical orientation of the university personnel and the district. An initial meeting between the assistant superintendent of curriculum and instruction, the department chair, and one of the faculty members with PDS experience outlined the department's mission and the district's educational goals. The department's mission is to educate future teachers for California's elementary schools, schools with demographics similar to those of the Colton School District. It promotes reflective practice as a means to understand the development of the individual learner, to address issues of cultural diversity, and to meet the needs of local communities and the demands of modern society. The foremost goal of the district is improving student performance, so it is against that standard that district programs are measured. The district believes that one of the major pathways towards improving student performance is improving teacher performance. Hence, participation in a collaboration with California State University San Bernardino would provide invaluable teacher training and staff development opportunities for newcomers and veterans. Further meetings with the District superintendent and assistant

superintendents and with interested principals added to the growing conception of the goals and structure of the project.

An important note about these initial meetings is the learning that went on among district office personnel, site principals, and university professors. Listening to the various perspectives presented helped everyone recognize the positions, attitudes, and expectations that each brought to the table (Harris & Harris, 1992). Everyone was committed to helping novices become excellent teachers in order to help children learn and perform. Everyone had slightly different views on how that could best be accomplished. This dynamic tension is critical for the success of a project. Otherwise, the result would merely be an outside program imposed on participants. In this case, hearing the multiple voices helped everyone reassess, consider, and propose new avenues and realize each one's responsibility in the process.

Based on information gathered from meetings with district representatives and from what was being learned from the other PDS, the design team identified several goals:

- candidates experience the entire school year in the same setting,
- candidates learn about the children in their elementary school classroom prior to formal student teaching, and
- candidates become a part of the elementary school; candidates be a student of schools and programs as well as a student of classrooms—thus understanding the wider picture of state, district, and school structures and constraints, instead of only focusing narrowly on a single classroom.

Project Design

To address the factor of support, the design team decided to offer a five-quarter program. It includes three quarters (one academic year) in preservice preparation and two quarters (two-thirds of an academic year) during the first teaching year. To address the second factor of integration of theory and practice, the team explored avenues for university faculty to work together to provide an integrated program for university faculty and resident teachers to work together to provide continuity between coursework and practice and for integration of District resources into university coursework. University and District liaisons were designated to oversee collaboration. More detail about the project design is offered in three tables that focus on candidates, resident teachers, and university faculty respectively.

Candidates: Table 1 provides an overview of candidates' involvement in the project. In Year 1 they learn about children, school programs, curriculum, and instructional techniques. The university

courses help direct and focus their observations and practice; the elementary schools and classrooms provide opportunities to observe and put learning into practice. Candidates have a "home" school with a designated classroom, visit other schools to observe specific programs, and, in conjunction with university faculty, work with district coordinators and mentors in specific disciplines. This allows candidates to look beyond their own classroom and introduces them to the support system available to teachers. Candidates begin the year as observers and gradually increase their responsibility so that by the spring they become the lead teacher in a classroom.

Table 1: Candidates' Involvement in the Colton Cluster Project

Year 1: Pre-service Teacher Education In An Elementary School

Fall

- Three mornings of observation and participation in a cooperating school
- Three afternoons of university courses at an elementary school

Winter

- Four times a week of observation and guided practice in same school
- Four times a week of university courses at an elementary school

Spring

- Student teaching in same cooperating school
- University supervision and one afternoon/evening of coursework

Candidates obtain employment and teach on a California Intern Multiple Subject teaching credential with a (Bilingual) Cross-cultural, Language, and Academic Development (CLAD or BCLAD) emphasis.

Year 2 (Fall/Winter): Intern Teacher Education

- Full-time teaching with continuing support through supervision
- Weekly intern support seminars at an elementary school

At the end of the Winter quarter, candidates may obtain their California preliminary credential with CLAD or BCLAD emphasis.

During the first quarter (September-December) of Year 1, two of the university classes are "theory" courses dealing with child development and programs for and performance of English language learners. The third course is mathematics methods. At the school site, candidates are expected to observe children in numerous classrooms, take on some routine activities (such as bringing children in from recess and taking lunch count) and teach some math lessons. In the winter, candidates have an educational psychology course and two methods courses: language arts and social studies. They continue to observe in

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their classrooms and to expand their teaching of mathematics, engage in literacy activities by assessing and working with one child until gradually increasing to a small group, and plan and teach a social studies unit. In the spring, candidates take on full teaching responsibility in the elementary classroom and attend a science methods course and a "Specially Designed Academic Instruction in English" methods course.

In Year 2 candidates are intern teachers. They continue with their cohort group by attending weekly seminars facilitated by university faculty and invited guests. The seminars allow time to share information on areas of concern and to delve deeper into the teaching/ learning process. Further support is provided through supervision—each intern is supervised by a university faculty member whom they know from the preservice year. In addition, faculty take the opportunity to work in interns' classrooms to model lessons and to work with elementary students. Thus candidates are provided with continued support in the critical first year and opportunities to integrate theory and practice.

Student Responses

To capture the intricacy, the intimate details that touch the reality of the lived experience, Cohort B was asked to respond to the question, "Knowing what you know now about the program, what questions would you have asked yourself prior to committing to the Colton Cluster Project?" Their responses, given in the middle of Year 1, provide insights into the demands of the program and the personal characteristics needed. A compilation of their questions follows:

Time and attitude. This program requires that you be flexible and willing to make schedule adjustments as opportunities or needs arise. "Are you flexible? Do last minute changes make you uncomfortable?" This program is a significant time commitment. You will spend 3-5 full days per week participating in schools and taking California State University San Bernardino courses. Therefore, you will often be required to work on assignments in the evenings and on the weekends. "Can you manage your time well? Will your family and friends be supportive and adaptive? Are they prepared for the time commitment you are about to make?"

Intellectual and academic life. This program requires a lot of reflection and critical thought. Although graduates of the program often describe the rewards and the fun, be aware that at times the content and activities of the program will make you feel challenged and uncomfortable. "Are you willing to examine even your most fundamental beliefs about yourself, your society, and schools? Are you willing to honestly struggle with ideas, ask yourself what they mean, and evaluate your beliefs and actions? Are you willing to take yourself seriously as an intellectual and as someone who will someday have the important

responsibilities of a teacher? Are you willing to learn from your mistakes and take risks?" This program requires a lot of reading and writing. "Do you have good reading and writing skills? If not, are you willing to develop them? Are you able to organize and synthesize large amounts of information and complex ideas? Are you a self-directed learner? Are you able to set your own educational goals and then work to achieve them? Are you a 'fill-in-the-blank' kind of learner or would you rather have a blank page?"

Interpersonal characteristics. "Do you believe that everyone has something to teach you? Can you work with and learn from those with whom you disagree? Are you willing to have some fun?"

Likewise, Cohort A reflected on the program after they had begun their first teaching year (Year 2):

Importance of the cohort group. "Little did I realize how important this group of 'would-be' teachers would become to me! They are as fine a group of persons as I've known—supportive, understanding, and caring."

Preparation for teaching. "New ideas each week during class. I feel much more prepared than I would have with traditional student teaching." "Este proyecto me ha preparado mejor para esta carrera en comparacíon al sistema tradicional. La flexibilidad que siempre hubo fue definitivamente una gran ayuda." (This project has better prepared me for this career than the traditional program. The flexibility that was often shown was definitely an immense help.) "El programa me ha preparado mejor que muchos de mis colegas que estan enseñando en la escuela donde estoy trabajando en este momento. Me ha dado la oportunidad de estar con mis compañeros de la clase y aprender de ellos. Es un programa excelente y yo lo he recomendado a muchos de mis amigas y amigos." (The program has prepared me better than many of my colleagues who are teaching in the school where I am currently working. It has given me the opportunity to be with my cohort group and learn from them. It is an excellent program and I recommend it highly to my friends.)

Support during the first year of teaching. The best support I've found this year is to be able to meet once a week with a group of fellow first year teachers and share my triumphs and sorrows. I feel this has saved my sanity this year, and I wouldn't trade the Colton Cluster experience for anything.

Integration of theory and practice. Close association with peers and professors ensure optimum learning experiences, but the greatest benefit, in my view, was reinforcing classroom theory with first hand observation on a daily routine. After five months of teaching, I have the utmost confidence that what I got from this program thoroughly prepared me for a very challenging profession.

Resident Teachers

Table 2 outlines the resident teachers' responsibilities. The District provides substitutes so that resident teachers can attend three quarterly meetings. At these meetings, faculty, resident teachers, and candidates share and problem-solve, learn about and practice observation techniques, and reflect on the project and make suggestions. Resident teachers and candidates are also able to spend one-on-one time together to plan lessons, units, locate resources, and so forth.

Table 2: Resident Teachers' Responsibilities in the Project

Year 1: Pre-service Teacher Education In An Elementary School

Fall

- Quarterly meeting (workshop) with all participants
- Introduce candidate to school site
- Model teaching and evaluate own performance
- Assist candidate with procedural routines (e.g. attendance, lunch count, and so forth.) and mathematics instruction

Winter

- Quarterly meeting (workshop) with all participants
- Model teaching and evaluate own performance
- Assist candidate in planning for instruction
- Provide opportunities for teaching lessons

Spring

- Quarterly meeting (workshop) with all participants
- Provide opportunities for student teaching
- Provide evaluation of teaching performance

Year 2: Intern Teacher Education

There is no formal structure in place for continued collaboration.

The District liaison reflected on the impact of the project on both potential and veteran teachers from the District's point of view:

> Not only does the Cluster program offer on-going training for those beginning their teaching career, but as master teachers become program participants and mentors, they, too examine their instructional delivery strategies' and educational philosophies. In sharing methods for early literacy, classroom management, curriculum development, conflict resolution, parent conferencing and training, and textbook implementation, veteran educators reexamine their own approaches and belief systems.

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As the District trains large numbers of staff members in Reading Recovery, CLAD and BCLAD strategies, balanced literacy, interactive mathematics, hands-on science, and technology, the Cal State teachers-in-training not only participate, but they provide objectivity and inquiries from a fresh perspective that is helpful to all of us.

The Cal State students also have a year's head start over newly-hired instructors in terms of District demographics and geographical differences and similarities. Many new teachers find our District extremely challenging in terms of parent expectation because the communities that make up the District differ in their priorities. Members of the Colton Cluster see those differences and similarities each day as they meet with staff, students, and parents. And they see first hand how the philosophy of the Board of Education and District and site administration is carried out . . . and how it translates in a classroom setting. For instance, our District supports PeaceBuilders and positive instruction, positive discipline as ways to ensure positive management of students. Without this training, many new (and veteran) instructors tend to be punitive in disciplining students.

This year-long training also allows University students to see if the District is a good "match" for them in terms of discipline policies, association rights, curriculum content, teaching methods, parent participation, administrative expectations, and so forth.

On a personal note, during the times I have been invited to conduct in-service sessions or share District goals and directions, I have found the students to be informed, dedicated, and knowledgeable about current research, state publications such as content Frameworks, child development, and teaching strategies.

University Faculty

Table 3 outlines the university faculty commitment in the project. Faculty plan and facilitate quarterly meetings to avoid separation of theory and practice in order to provide project coherence (Goodlad, 1991). Also faculty meet monthly to share the content of the courses, talk about any issues, discuss procedures, and solve problems. By sharing course content and inviting each other to participate in courses, the common philosophical thread is discovered and strengthened. In addition, by knowing about each other's course content, readings, assignments, and projects, faculty can knowledgeably refer to other courses and thus help candidates make connections among courses. By sharing successes and concerns about students, faculty perspectives on

candidates are broadened and candidates can be counseled sooner as well as be guided through the intricacies of the credentialing process.

Table 3: University Faculty Commitment to the Project

Year 1: Pre-service Teacher Education In An Elementary School
Fall
- Quarterly meeting (workshop) with all participants
- Monthly meeting with other project faculty
- Weekly afternoon course

Winter
- Quarterly meeting (workshop) with all participants
- Monthly meeting with other project faculty
- Weekly afternoon course

Spring
- Quarterly meeting (workshop) with all participants
- Monthly meeting with other project faculty
- Biweekly supervision of student teachers
- Weekly afternoon course

Year 2: Intern Teacher Education
Fall
- Weekly support course
- Biweekly supervision of intern teachers
- Monthly meeting with other project faculty

Winter
- Weekly support course
- Biweekly supervision of intern teachers
- Monthly meeting with other project faculty

Each of the four faculty have full responsibility for two courses in Year 1 of the project and share responsibility for one seminar in Year 2. Faculty supervision responsibilities include working with student teachers in the spring quarter of Year 1 and following them as intern teachers in the fall and winter of Year 2. In reflecting on their involvement in the Project, faculty said:

> The district has provided time for resident teachers, candidates and faculty to meet. It has opened its schools to us, provided guest speakers, and helped candidates with the interview process. I find the interest and the support from the district to be one of the reasons the program is so successful. Sometimes I have the impression that resident teachers don't think I understand about "real" teaching, but through my visits to classrooms throughout the year, I think many of them now

see me as a concerned teacher and not just as an "ivory-tower" university professor.

The chance to work closely with the same colleagues for an entire year allows us to provide an integrated, consistent program with a unifying philosophy. By working together, we gain more understanding about the other courses and can see the interconnections in the preparation process. It makes me recognize how futile a single 10-week course is in helping students understand the complexity of learning and teaching, and I am convinced an integrated cluster project such as this one is a much more powerful model for helping candidates deal with the realities of classroom life. In addition, I received from fellow faculty a level of support unlike anything available at the university. We were so concerned about the students having support, we did not realize that we needed it too!

I learned about the value of working with a cohort of students an entire year and seeing their growth and development. There is a sense of continuity over the courses taught and together we have a shared history that supports the student teaching portion of the program. I think we are building a "program culture" that can provide us with a common set of frameworks and vocabulary and faculty are providing an integrated program so that candidates are not pulled from one direction to another by conflicting demands. I like the immediate application of theory into practice.

Project Evaluation Year I and Implementation Year II

Professional literature related to PDSs often reports the need for changes. Rarely does a PDS stay exactly the same from one year to the next (Smith, 1992). Towards the end of the year, a survey was sent to all participants asking for their opinion of the program. Table 4 summarizes the survey results of strengths, challenges, and suggested changes. Candidates, resident teachers, principals, and university faculty then met to debrief the year. After reading results from the survey, small groups comprised of all stakeholders met to provide concrete suggestions about the challenges facing the project. The basic design as described in Tables 1-3 was seen as a strength of the project and remained the same during the second year. However, clarifying the challenges and suggesting ways to address those challenges provided additional direction for the second year of the program. The suggestions and changes in the program are described below.

Table 4: Strengths, Challenges, & Suggested Changes for the Project

Strengths
- Year-long experience in elementary classrooms
- General group meetings
- Working with cohort groups
- Dedication of all involved
- Flexibility

Challenges
- Incompatibility of university and year-round schedules
- Having another person in classroom all year
- Communication
- Time
- Integration of theory and practice

Suggested Changes
- Specific guidelines of expectations: i.e., define September March, limit observation, begin teaching sooner, be accountable
- More and earlier supervision involvement from Cal State
- More regular communication between resident teachers and university faculty
- Screening of master teachers
- Candidates spend time with 2 or 3 teachers
- Candidates experience "beginning of year"

Incompatible District and University Schedules. During the first year of the project, all the candidates were in year-round schools, with both multi-track and single-track schedules. In order to meet the university academic schedule, candidates had to change classrooms and, in some cases, schools whenever their designated class went off-track. This caused upheaval and stress as they took on more and more teaching responsibility and fulfilled course assignments. Another cost of this challenge was the loss of continuity between candidates and students, candidates and resident teachers, and resident teachers and university faculty.

In the second year, the year-round schools were replaced with five traditional-track schools. This provided continuity for all participants and less stress for candidates in meeting deadlines imposed by the district and university schedules. Although this meant that all principals and resident teachers would be new for the second year, the benefits of having a continuous experience for the candidates far outweighed the lack of continuity in district participants from one year to the next.

Having Another Person in the Classroom All Year. The first year resident teachers articulated the costs and benefits of having another person in their classrooms for a full year. The group felt that this would

not be a concern if there was screening of resident teachers prior to a candidate being placed in the classroom. Such a view is supported by Yamashita (1991). A suggestion was made that principals, who are knowledgeable about their staff, help match personalities, work habits, and so forth. Therefore in the second year the candidates, university faculty, and school principals met in August prior to the beginning of the traditional public school year. Candidates met with the principal of their "home" school. They discussed their teaching/learning philosophies and their strengths, weaknesses, and interests. Based on that discussion, principals were then in a position to match resident teachers with candidates. This added feature of the program appeared to minimize many of the interpersonal problems that surfaced during the first year.

Communication. Participants stated that communication is a shared responsibility among all—resident teachers, candidates, university faculty, and district office personnel. Suggestions were made that guidelines be developed to clarify participants' responsibilities and university faculty work more closely with individual schools and their staffs.

Development of guidelines became the topic for the first general meeting held in the fall of the second year. Participants met in job-alike school groups to write expectations about working and spending time together. They then posted their lists, read all of them, and each group compiled a new list of those items they found in common and any others that they thought important. From this work, *Colton Cluster Project Guidelines* (See Appendix) emerged.

University professors arranged to have one "office" hour at their liaison school every other week during the first two quarters. This allowed for communication between faculty and resident teachers and for one-on-one time with candidates.

Time. All agreed that time is an elusive, scarce commodity and that the structure of the school day does not provide opportunities for various constituents, particularly resident teachers and candidates, to talk and plan together. Suggestions made to address this issue included using faculty to "cover" classes, having the principal provide time, pairing two classrooms so one resident teacher/candidate team could work with both classes while the other team talked, and using substitute teachers on a monthly or even weekly basis. University faculty made themselves accessible through visits every other week.

A related time issue that was seen as a strength of the program was the year-long experience for candidates in the elementary schools. However, this year-long experience did not include participation in the important first weeks of school. This situation would not be alleviated with the change to traditional track schools because the university quarter would not begin until the end of September, a good three weeks after the District school year began. Therefore, a decision was made to

institute a "suggested opportunity"[1]— for candidates to observe at their "home" school for the first weeks of school.

Integration of Theory and Practice

One of the initial guiding factors of the project was the integration of theory and practice, how to unify the different kinds of information presented in the university courses with the reality of classroom life. This was still considered to be a challenge by participants. One way of addressing this was to utilize the resources of the district in the university classes.

In that first year, candidates and university faculty benefited from talks by district personnel (e.g., the bilingual coordinator and language arts and social studies mentors), by school visits (e.g., the Title VII program at one of the district schools and the early literacy one at another), and by attending district-sponsored staff development days (e.g., art and writing across the curriculum and balanced literacy). Candidates were also invited to the district office to meet with the assistant superintendent for personnel who, along with district principals, outlined the district philosophy and hiring procedures and provided candidates with mock interviews.

In the second year, attending district-sponsored staff development days was formalized into "suggested opportunities" and guest speakers and school visits were continued and expanded. More district resources in early literacy were incorporated into the language arts methods course (including overviews by the project coordinator of the California Early Literacy Learning Project and the district facilitator for Reading Recovery), a visit to an early literacy classroom, and a visit to a school with an integrated K-6 literacy program. The visits to model programs and classrooms enable candidates to see implementation of the theory they are learning about in the university courses and the district is able to showcase its exemplary programs. A significant change related to integration was that a university professor and a district teacher co-planned and taught the science methods course.

Project Strengths

As stated earlier, one of the major strengths of the project continues to be the year-long experience in the elementary school. Candidates have the opportunity to view the full spectrum of the school year, to gradually acquire skills and experiences in a safe environment, to participate as a staff member (including all the "extra" duties required

[1]The faculty decided to designate as "suggested opportunities" those activities that were deemed important but which could not be required because they fell outside the university academic schedule.

of a teacher) and to begin to learn about children. The addition of the beginning-of-year "suggested opportunity" for the second year helped candidates move quickly into the teaching/learning year.

A second strength is the general group meetings. Three were again provided during the second year. The morning of the first, mentioned above, centered around guidelines for participation. During the afternoon, resident teachers, principals, and faculty met to go over procedures, clarify course assignments, and answer questions while candidates met for class. A similar structure was maintained for the second meeting: candidates in class for half the day while the resident teachers and other faculty met to continue discussion of expectations, concerns, questions, and so forth. During the afternoon candidates and resident teachers met one-on-one for planning. The provision for this planning time was another attempt to address the time challenge mentioned above. As noted, the demands of the elementary school day make it difficult for teachers and candidates to plan together. This is an ongoing problem for which no institutionalized solution has been found. Resident teacher and candidate pairs find various solutions. During the third meeting, all participants met in the morning for an overview of observation and conferencing strategies. The afternoon was again devoted to planning.

The third strength of the project is the cohort group. Again, an initial factor in the program design was support. The cohort group was envisioned as a means to provide support for pre-service and intern teachers (Boris-Schacter, Bromfield, Deane, & Langer, 1994; Holmes Group, 1990; Johnson & Johnson, 1987; Winitzky, Stoddart, & O'Keefe, 1992). Several candidates have mentioned that being with, talking to, and going through the same experience with fellow students has helped them through the learning and initial teaching process. ("My classmates have been very supportive and reassure me of my ability to teach." "Being able to talk to a group of other candidates has made me feel better throughout the year." "The other students in the project have always been there, ready to offer the needed support.")

Probably one of the factors that makes a program like this successful is the dedication of the participants. Although there is always a complaint about the lack of time to do the job adequately, this is probably due to the fact that participants are committed to the process of helping newcomers to the profession and put extra effort into it. The cost in time spent in planning lessons together, talking with candidates, visiting classrooms, and smoothing ruffled feathers is outweighed by the benefit of candidates who are better prepared to work in classrooms with large numbers of diverse students.

Conclusion

This paper has described two years of the Colton Cluster Project, which is designed to better prepare new teachers both academically and emotionally for the classroom. The project was designed to achieve this goal through support and integration of theory and practice. We believe that the project has provided strong support for candidates as evidenced by the first year survey results and initial reading of the second year survey results. We continue to work on the integration of theory and practice and believe that this factor is one that takes time to develop fully. We cannot at this time determine whether the goal has been met. Self-reports from the Year 2 candidates and the fact that they are still teaching is the only evidence thus far. The third year of implementation will provide an opportunity to follow the eight Cohort A and the seventeen Cohort B candidates.

The project is still evolving and could very likely change in the near future. The School of Education at the university has undergone a reorganization, and one of the faculty in the project has a new administrative role that will reduce his involvement in the project. The District is undergoing massive staffing changes as a result of California's new class-size reduction legislation and classroom space is at a premium. The elementary teacher preparation program is changing based on stipulations from the Commission on Teacher Credentialing. With other PDSs outside of California described in the literature, there does not appear to be the confounding variable of a State that changes its mind about teacher preparation from minute to minute. Maybe, therefore, the key to the success of the Colton Cluster Project is to always be evolving.

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Appendix

Colton Cluster Project Guidelines

1. Learning about the school site

Resident teachers

- share district and school policies, procedures, and materials
- share how, where, and when we get curriculum information and supplemental materials to teach specific subjects and grade level
- explain the importance of duties
- provide a staff handbook
- explain legal procedures

Candidates

- meet faculty
- become familiar with procedures, personnel
- learn about the culture of schools

University Faculty

- "pop in" on a regular basis

2. Learning about children

Candidates

- spend more time with students
- switch classrooms with others in the program
- work with English language learners
- learn how to clue in to learning disabilities
- deal with diverse learning levels

3. Learning about planning and teaching

Resident teachers

- provide "shadow leadership"
- share thoughts about reasons for actions
- share specific ideas, knowledge about teaching
  for example: time-filler activities; how to determine how much time is spent on each task
- model teaching and evaluate own performance

Candidates

- ask questions when need and let RT know when they are comfortable
- assist in instruction as well as observing; instruct with and without RT present
- gradually take over responsibility, not sink-or-swim for example: tutorials—small group—team teaching—whole group; opening exercise, journal writing, warm-up
- have access to student books/materials

All

- plan lessons, units, and year; RT be involved with candidate's lesson plans prior to presentation
- spend time planning and communicating

4. Learning other classroom responsibilities

Resident teachers

- demonstrate "bookkeeping" procedures
- give information on everyday paperwork and routines
- discuss and model classroom management strategies; techniques for dealing with disruptive behavior

Candidates

- be present while dealing with parents

5. Above all, all participants enjoy the experience

Preparing Teachers for Classrooms of Tomorrow

Betty J. Conaway, Pat Tipton Sharp, and Susan A. Schafer

This paper describes the PARTNERS project, which was established in 1995 as part of Baylor University's Center for Professional Development and Technology. PARTNERS is a collaborative effort with P-12 schools and teachers to prepare future teachers for the classrooms of the 21st century that reflect the changing characteristics of P-12 students. The project has four major goals. The first is to increase the number and the quality of field experiences prior to student teaching; the second is to increase the preparation of teacher education students to use technology for classroom instruction; the third is to increase the preparation of teacher education students to work with multilingual and multicultural student populations; and the fourth is to implement a holistic, performance based assessment model in teacher education classes.

Educators face new challenges in a world where rapid change has become the norm rather than the exception. We are compelled to prepare children to live and work in a world transformed by new technologies, democratic shifts, and a global economy. Given that the only certainty is uncertainty, educators must equip young people with the experiences and knowledge that will empower them to continue learning for the rest of their lives.

Traditional patterns of education, especially those that organize students into "tracks" based on abilities, are hopelessly inadequate to prepare young people for the challenges of the future. In the past, many children left school before graduation or received an education that limited their opportunities. Success for all children in reading, writing, mathematics, science, and social studies must be the goal of all educators. Young people must be empowered to direct their own lives and pursue lifelong learning. Educators must demonstrate that excellence and equity are compatible if the children of today are to be prepared for tomorrow's challenges.

Baylor University and other university teacher education programs that participate in the Holmes Group (1995) recognize the importance of preparing future teachers in close collaboration with teachers in elementary and secondary schools. *Tomorrow's School of Education: A Report of the Holmes Group* states that, "sustained involvement in the public schools, predicated on mutual interest in the learning needs of children, must become an enduring feature of Tomorrow's Schools of

Education" (p. 17). The Holmes Group has urged universities to embark on,

> the road to a new era of professional education for educators. . . Reforms in schools of education have been neither wide enough nor deep enough to produce a significant impact on practice in elementary and secondary schools, which . . . should be the focal point for measuring the effect of changes in Tomorrow's Schools of Education. (p. 99)

The professional development school has the potential to realize this vision.

Professional Development Schools

A professional development school (PDS) is a collaborative partnership between a P-12 school and a university teacher education program for the purpose of preparing future teachers, sometimes including community based institutions and businesses. In a PDS, teacher education faculty and P-12 teachers work closely to provide quality field-based teacher education courses. To be successful, the P-12 teachers in a PDS must commit to implementing innovative instructional strategies and the university faculty must commit to working in close collaboration with teachers to develop quality experiences for teacher education students. This interactive process enables P-12 teachers and university faculties to learn much about providing the kinds of experiences needed to prepare future teachers for integrating technology and instruction, designing developmentally appropriate individualized instruction to meet all the needs of all students, implementing inclusion practices, and collaborating with parents to provide successful, positive experiences for children.

The Baylor University Center for Professional Development and Technology, the PARTNERS project, was established in 1995 as part of the School of Education. PARTNERS is a collaborative effort of many groups concerned with teacher preparation. The acronym "PARTNERS" stands for Partners as Researchers and Technologists Negotiating Educational Reform Strategies. The focus of the project is to strengthen teacher preparation by preparing teachers for leadership in a rapidly changing society in order to facilitate the educational reforms necessary to achieve world class standards. A total of fourteen elementary schools, five middle schools, three high school, and a two year technical college are active participants in the project. In addition, one child care center, three regional education service centers, and one private business entity are members of the partnership. The goals of the project are to:

1. increase the number and quality of field experiences prior to student teaching,
2. increase the technology expertise of teacher education students,
3. design and implement performance based proficiencies as the primary method of assessment in teacher education courses, and
4. increase the preparation of future teachers to work in multilingual schools and multicultural environments.

The Changing Role of Teacher Education

To adequately prepare future teachers, university teacher education programs throughout the United States must remain alert to the changing characteristics of P-12 students. Children enrolled today in P-12 schools throughout the U. S. are unique in three important ways when compared to children enrolled in these same schools ten years ago. First, students in P-12 schools today are more technologically literate than students of the previous decade. Today's students wear technology on their heads, on their wrists, and at their waists. Although they may not verbalize the idea, they recognize that computer-based technologies are an essential component of existence as the 20th century draws to a close. Even elementary school students take audio CDs for granted, assume that computers are routine, and are convinced that computer-based technologies will be increasingly important in the next century.

Second, students in P-12 schools today are more diverse in language and culture than in the recent past. Immigration to the U. S. from Spanish speaking countries, as well as from Europe, Asia, and the Middle East continues at unprecedented rates. This is particularly true for Texas, where recent data indicates that "statewide, 5 percent of all students are minority. Districts in major urban areas serve an 80 percent minority student population while districts in rural areas serve a population that is only 30 percent minority" (Texas, 1995, p. 4). Further, "the highest percentages of students in bilingual or English as a second language (ESL) programs are enrolled in the Edinburg and El Paso service center regions with 38 percent and 24 percent respectively. These figures are well above the state average of 10 percent" for bilingual and ESL students (Texas, 1995, p. 5). There is a critical shortage throughout Texas of teachers who are qualified to work in bilingual classrooms as well as teachers who are able to provide instruction for students who are learning English as a second language.

A third unique characteristic of students today is related to workplace expectations. The workplace demands experienced by today's high school graduates are significantly different when compared to the workplace demands of ten years ago. New employees in any

business or organization are expected to demonstrate knowledge of a wide variety of information; this is as fundamentally important today as it was 10 years ago. However, knowing how to secure additional information and manipulate that information is of even more importance to employers today. Of special value in the workplace environment today is

1. knowing where to find information,
2. knowing how to evaluate the quality of that information and communicate it to others, and
3. knowing how to interpret and apply that information in a variety of real life settings.

For example, knowing how to calculate square roots is important, but math books and many calculators have that information stored for reference. However, understanding the concept of square root and how, when, and where to apply it is even more important and of greater value to employers and prospective employees. A more applied example concerns the issue of water quality. Water quality is essential to many production industries. Understanding how the quality of water affects production is important information. But knowing how to test the water for quality, understanding the acceptable standards for water quality, and having the ability to use that information, apply it in an industrial setting, and communicate the results to others is even more essential.

The PARTNERS Project

The purpose of the PARTNERS project is to collaborate with P-12 schools and teachers to prepare future teachers for the classrooms of the 21st century that reflect the changing characteristics of P-12 students. The project has four primary goals. The first goal is to increase the number and the quality of field experiences prior to student teaching. The number of field experiences prior to student teaching has been limited in traditional teacher education programs. Students were required to spend only limited periods of time in a classroom in a P-12 school, and these experience varied significantly depending on the school, the classroom teacher, the students, and the content area. In a best case scenario, the teacher education student provided instruction for individuals or small groups of P-12 students with the supervision of an experienced and successful classroom teacher. However, some teacher education students passively observed instructional activities in a P-12 classroom.

Attempts to define quality field experiences for teacher education students have left many unanswered questions (Furlong & Maynard, 1995; Proefriedt, 1994). Is the quality of the experience related to the number of hours in the field or to the variety of field-based activities?

Is quality related to mastering one particular teaching skill? Is there a continuum of field experiences, beginning with relatively simple tasks and leading to more difficult, complex tasks? These critical questions comprise the focus of data collection and are the essential component of the research design of the PARTNERS project.

The second goal of project is to increase the preparation of teacher education students to use technology for classroom instruction. Future teachers must be able to use technology as a teaching tool, as well as use technology for personal productivity. In order to accomplish these ends, teacher education students must have technology available in the schools for them to use during field experiences. However, many P-12 schools do not have sufficient technology for their own needs at this time (Becker, 1994). Consequently, one of the goals of the project is to assist P-12 schools in the Baylor partnership obtain additional technology and implement this technology for instructional purposes.

The use of technology in P-12 schools is well documented (Willis & Willis, 1991; Becker, 1994), but little is known concerning the degree to which teacher education programs throughout the U. S. have integrated technology (Imig & Switzer, 1996). Instructional norms within the university setting are firmly grounded in the autonomous decision making of the professor who may or may not decide to use a particular technology based on personal preferences. Many questions remain unanswered concerning the most effective ways to assist university faculty to model the use of technology for teacher education students (Imig & Switzer, 1996).

The third goal of the project is to increase the preparation of teacher education students to work with multilingual and multicultural student populations. Multicultural and multilingual issues are integrated into all teacher education courses, but the changing characteristics of the P-12 population in Texas require that the multicultural/multilingual preparation of preservice teachers be strengthened. Future teachers must be prepared to work with an increasingly diverse P-12 population.

This concern has been the focus of numerous reform efforts in teacher education. One notable effort was the AACTE Commission on Multicultural Education (1973). However, as with other issues in teacher education, there is a general lack of agreement concerning what constitutes "best practice" in the area of multicultural education. Milhouse and Henderson (1993) identified as many as six different models of implementation for multicultural education. Despite this lack of agreement, it is essential that teacher education students be prepared to teach reading and language arts, mathematics, science, and social studies to all children, including those who are native speakers of English, those who are bilingual, and those children who are learning English as a second language. Much cultural knowledge is acquired through language acquisition (Hallcom, 1995). Incomplete knowledge

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or incomplete understanding of imbedded cultural information can complicate the learning of even fundamental skills (Slapin, 1992; Zaslavsky, 1996).

The fourth goal of project is to implement a holistic, performance based assessment model in teacher education classes. Traditional teacher education courses emphasize a test driven model of assessment and evaluation. An increased emphasis must be placed on systems of assessment and evaluation that focus on mastery of performance proficiencies that reflect what successful teachers are expected to be able to do.

The literature discussing the development of teacher cognition, reasoning, reflection, and decision making is growing, and "it is compelling in terms of factors to be considered in the preparation of teachers" (Howey, 1996). At times, this orientation may seem to be in opposition to faculty members and organizations such as NCATE that emphasize development of a "knowledge base" for teacher education students prior to field experiences in a classroom setting. Kennedy (1990) observes that professional educators rarely suggest that requiring students to accumulate a knowledge base will facilitate problem solving or that a set of clinical skills will assist the professional educator locate whatever additional knowledge is needed. However, the development of a system of performance based proficiencies for assessment of teacher education students presupposes a continuous review and revision of those proficiencies and the knowledge base and parallel field-experiences that serve as the foundation for those proficiencies. The process of continuous review and revision of performance proficiencies, especially when undertaken collaboratively with P-12 teachers in the context of the professional development school, is anticipated to clarify the essential content of the teacher education knowledge base and the characteristics of effective field-experiences that are most needed by successful classroom teachers.

Conclusion

The Professional Development School, as described by the Holmes Group (1990), articulates both a view of learning and of a community of learners. Teachers are expected to master knowledge, skills and instructional strategies. Despite the potential of the professional development school to facilitate future teachers develop these qualities, it is important not to romanticize the clinical experience (Cohen, 1988). Many questions remain unanswered. The conditions influencing field-experience placements are only now being researched (See McIntyre, Byrd, & Foxx, 1996). Increased practice in the field without reflection cannot be expected to enhance professional growth. However, identifying the characteristics of an effective field-experience, including the role of the classroom teacher and the role of the university faculty

in those field-experiences remains unclear. One of the most significant benefits of the PDS movement may be the development of improved qualitative data collection and methods of analysis that will provide professional educators with a deeper understanding of their craft.

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Teacher Fellows Program

Virginia Resta

This paper describes a unique collaborative university/ public school program encompassing school-based preservice teacher preparation, new teacher induction, and professional development based on an innovative strategy involving the exchange of resources between the university and participating schools resulting in no additional costs to the consortium partners. Teacher Fellows, fully certified teachers who are Southwest Texas State University (SWT) graduate students, serve as first year teachers in participating school districts. In exchange, master classroom teachers are released from classroom assignments to serve as mentors to the first year teachers. The short and long term benefits of the program and the challenges and opportunities encountered in its design and implementation are described.

Unlike novices in other professions, new teachers on entry to the teaching profession are given the same or more demanding responsibilities as veteran teachers. Newly licensed teachers are prepared to begin to teach, but they have not fully developed the skills and repertories to be thoroughly proficient. It is also difficult for them to fine-tune their competence without assistance and support. A complete conception and a realistic awareness of being a teacher cannot be gained entirely, simulated exactly, or understood sufficiently in preservice training. Even a superb student teaching experience lacks the completeness and the realism of the first teaching job (Huling-Austin, Odell, Ishler, Kay, Edelfelt, 1989). The difficulties and limited support available during the initial year for many first year teachers may lead to frustration and the loss of opportunities to help them develop the full range of skills and knowledge necessary to address the complexities of today's classroom. Many teachers who survive the induction period and remain in teaching develop a survival mentality, a set of restricted teaching methods, and a resistance to curricular and instructional change that may last throughout their teaching careers (Gordon, 1991).

The literature on beginning teachers suggests that up to 50% of new teachers become discouraged and abandon the teaching profession within the first five years of their careers. What is worse, it is often the most talented and promising first-year teachers who, without assistance, become discouraged and leave the teaching field. If a profession is to remain viable and strong, it must be able to attract promising candidates to its ranks and retain significant numbers of its most talented members

(Huling-Austin, 1987). Master teacher mentors can be very helpful to beginning teachers, however, few programs receive the level of funding required to provide: 1) the additional time needed for mentoring to take place; 2) the additional training veteran teachers need to mentor beginning teachers successfully; and 3) the additional compensation to appropriately reward teachers who take on this critical and time-consuming task.

The newly established Southwest Texas State University (SWT) Elementary Teacher Fellows Program represents a unique collaborative effort to address first-year teacher needs based on a no additional-cost exchange of resources between the university and partner school districts. In this model, Teacher Fellows, fully certified teachers who are SWT graduate students, are contracted by SWT to serve as first-year teachers in participating school districts. In exchange, master classroom teachers from participating districts are released from classroom assignments to serve as Faculty Exchange Teachers. Their role includes providing intensive on-site induction and mentoring support for the Teacher Fellows in the graduate program, supervising and co-instructing in the undergraduate teacher education program at SWT, and/or supervising SWT student teachers placed in their district. For each Exchange Teacher the school district assigns to the program, the district selects three full-time fully certified Teacher Fellows who are assigned by the district to available elementary classrooms. SWT Teacher Fellows earn a masters degree, tuition free, within a specified fifteen month program and are supported by a $10,000 fellowship in lieu of district salary. SWT Teacher Fellows also receive SWT health insurance and workers compensation.

Teacher Fellows Program Description

The goals of the Teacher Fellows program, although primarily focused on the induction of new teachers, also address the needs of the veteran teacher, the university, and the participating school district. The goals of the program are to:

- increase the retention of promising beginning teachers in the teaching profession
- provide continuing assistance to reduce problems commonly experienced by beginning teachers
- support development of the knowledge and the skills needed by beginning teachers to be successful in their initial teaching positions
- integrate beginning teachers into the social system of the school, the school district, and the community
- provide an opportunity for beginning teachers to analyze and reflect on their teaching with coaching from veteran teachers

- initiate and build a foundation with new teachers for the continued study of teaching
- increase the positive attitudes of beginning teachers about teaching
- provide additional teacher resources to the university school based undergraduate classes and student teaching supervision
- provide an intensive sustained professional development experience for veteran teachers
- increase inter-institutional collaboration

Teacher Fellows complete a Master of Teaching degree within an intensive fifteen month period. During the two summer sessions preceding and following the academic year, Teacher Fellows enroll in twelve graduate hours (6 per summer session). The Teacher Fellows carry 6 hours of graduate course work during the fall semester and 9 graduate hours in the spring semester. Teacher Fellows must maintain a 3.0 grade point average for all course work. The courses are designed to help the beginning teacher explore a variety of resources and to study curriculum development and instructional strategies (Resta, 1994). As Teacher Fellows begin to implement skills and strategies from their graduate studies in their own classroom, they begin to see connections between theory and practice. Courses are carefully sequenced so that they build on each other to provide a coherent program of studies for the Teacher Fellows. Saturday seminars are taught on site in the classrooms of the Teacher Fellow participants. The seminars provide a forum for Teacher Fellows to share their experiences and reflect on their accomplishments in relation to professional growth goals. The seminar also provides a support network for the Teacher Fellows during their first year of teaching. Feelings of isolation and frustration, which are commonly experienced by beginning teachers, are reduced by the seminar and other support features of the program. An important component of the program is the design, implementation, and documentation of specific classroom-based action research projects designed to bring theory and practice together in real school settings.

Teacher Fellows begin the program with a summer of intensive course work, including work in human growth and development, educational foundations, curriculum development and integration of technology in the classroom. The first summer session is designed to provide foundations for the continued study of the teaching/learning process. The second session of the first summer of the program provides opportunities for Teacher Fellows to conduct a community study project, develop a multimedia presentation describing their school community, review curriculum materials specific to their school and assigned grade level, develop a curriculum matrix for long range planning and curriculum integration, and plan for initial teaching units and

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classroom procedures. Teacher Fellows present their summer projects to an invited audience on the last day of class. Faculty model constructivist teaching practices (Brooks & Brooks, 1993). Project work and authentic assessments are demonstrated through course projects.

Teacher Fellows begin teaching full time in August at their assigned campuses within the eight participating school districts. Throughout the school year, Faculty Exchange Teachers support Teacher Fellows through weekly visits to their classrooms and providing assistance in areas identified by Teacher Fellows as areas for professional growth. Faculty Exchange Teachers use cognitive coaching to help Teacher Fellows reflect on and improve their practice. Teacher Fellows are also supported through graduate course work one evening per week and one Saturday per month.

The fall academic program integrates research methodology and classroom practice. Each Teacher Fellow designs a practical research project to be implemented during the spring semester. Teacher Fellows use Marzano's *Dimensions of Learning* as a framework for analyzing the curriculum units they use in their classrooms. Classes meet on Monday evenings and one full Saturday per month throughout the fall and spring semesters. The Saturday classes are rotated among the teacher Fellow's campuses, enabling participating school administrators to showcase their school to Teacher Fellows, Exchange Teachers and professors. During the Saturday sessions the Teacher Fellows make presentations in their classrooms, sharing their curriculum work, instructional environment, challenges, and triumphs. In addition, the campus-based seminars provide opportunities for Teacher Fellows, Exchange Teachers, professors, building administrators, community members, and parents to interact around contemporary educational and societal issues.

During the spring semester a team-taught block of three courses is offered integrating curriculum theory and development, multicultural issues in today's classrooms, and age-appropriate culturally sensitive alternative assessments. Learning projects provide opportunities for Teacher Fellows to work with professors and Exchange Teachers to:

- develop age-appropriate, culturally relevant integrated thematic units of study
- explore various alternative assessments including: performance-based assessment; authentic assessment, portfolios, and developmental benchmark continuums
- implement practical research projects using a variety of strategies, including visiting schools and interviewing teachers, principals, parents, community members, and students

- conduct cultural surveys of the communities in which they teach
- participate in professional conferences
- prepare and present a comprehensive portfolio demonstrating best practices and growth as a teacher.
- reflect and process learning through a dialogue journal

Toward the end of the school year, Teacher Fellows portfolio presentations are held at their respective campuses. Portfolios are designed to showcase professional growth in five "dimensions of learning": positive attitudes and perceptions about learning, thinking involved in acquiring and integrating knowledge, thinking involved in extending and refining knowledge, thinking involved in using knowledge meaningfully, and productive habits of mind (Marzano, 1992). The portfolios contain, but are not limited to, artifacts from each of the dimensions, growth pieces, best efforts, evidence of an action research project, evidence of community study, an integrated thematic instructional unit, and a think piece.

Audiences for the portfolio presentations are comprised of SWT professors, Exchange Teachers, campus principals, teachers and Teacher Fellows. Audience participants complete rubrics to evaluate the presentations. Past completed rubrics indicated that teaching colleagues and building administrators found the experience to be useful and informative on many levels. Feedback from the professors, teachers, and administrators has been consistently positive related to the depth and comprehensiveness of the portfolio presentations. Teacher Fellows commented on how much they learned from the experience and the realization of their professional growth and accomplishments over the year. Many Teacher Fellows said they intend to continue the teaching portfolio beyond their initial teaching year, and others stated they would begin or continue using student portfolios to enhance the evaluation of student learning. Many building principals also invited Teacher Fellows to present their portfolios at staff meetings.

In addition to integrating first-year teaching with academic coursework, the SWT Teacher Fellows Program affords the participants opportunities to engage in professional development activities beyond those typically afforded first-year teachers. Examples include participation in:

- Critical Issues, Technology, and Texas ASCD Conferences
- Ropes Training
- Harry Wong Workshop at Baylor University
- NCTE Interactive Teleconference
- Discussion with National Teacher of the Year 1993, Angelique Acevedo

- Assessment and Management Workshops
- District School Board presentations
- Showcasing school and classrooms to colleagues and master teachers from other districts
- "Hosting" visits from SWT Dean, Department Chair and Director of Center for Professional Development
- presentations to SWT undergraduates at recruitment events
- Field trips to ACT Academy, McKinney Texas, sole recipient of $5.5 million grant from the U.S. Department of Education to restructure a school with technology
- Field trip to San Antonio providing multicultural oppor-tunities designed to build cultural sensitivity and awareness

All of the above program activities, resources, and opportunities are designed to provide a comprehensive support system for the first year teachers. The expectations for the Teacher Fellows, in turn, is that they will:

- teach subject matter to their students and continuously monitor and adjust their teaching so that each student is achieving up to maximum potential
- strive toward improving teaching abilities
- reflect regularly on the Teacher Fellow experience and record the thoughts and reflections in the Teacher Fellows dialogue journal
- speak frequently, openly and honestly with the Exchange Faculty teacher about classroom experiences
- set professional growth goals and evaluate their own progress toward attaining these goals
- share experiences with the Teacher Fellows cohort group to provide support and sustenance to reduce isolation of other Teacher Fellows

During their second and final summer in the program, the Teacher Fellows reflect on their first year teaching experiences and determine their strengths and needs as teachers. They select, with faculty assistance, nine hours of appropriate elective courses from a preapproved list. Classes in the last summer of the program are not taken as a cohort.

Teacher Fellows complete oral comprehensive exams and formally present their Teacher Fellows portfolio in a streamlined twenty minute presentation, followed by discussion and questions from the faculty Masters Comprehensive Exam committee members.

In addition to the fifteen month degree program and induction support, the program affords opportunities for veteran teachers, selected

as Exchange Teachers, to develop new roles and leadership skills. Their role includes providing on-site induction and mentoring support for the Teacher Fellows in the graduate program, supervising and co-instructing in the undergraduate teacher education program at SWT, and/or supervising SWT student teachers placed in their district. They are released from classroom teaching duties for a period of one to two years (subject to district approval) to provide induction and mentoring support to the Teacher Fellows in their district through weekly on-site non-evaluative classroom visitations, graduate classes, and seminars.

Exchange Teachers provide beginning teachers many types of support, similar to those identified by Odell (1986). These include:

- providing information related to procedures, guidelines, or expectations of the school district
- providing information about materials or other resources available for Teacher Fellows to use
- providing information about teaching and assessment strategies
- providing support through empathetic listening and sharing experiences
- giving guidance and ideas related to discipline and managing students
- providing information about organizing and planning the school day
- analyzing and discussing the physical arrangement and provisioning of the classroom
- demonstration teaching
- providing help or ideas related to working with parents

Additionally, Faculty Exchange Teachers support Teacher Fellows by facilitating their reflective thinking through cognitive coaching (Costa, & Garmston, 1994); assisting them in goal setting, problem solving and self-evaluation; providing support during stress points (opening of school, first report card, and so forth); and reducing the feeling of isolation and despair commonly experienced by first year teachers.

Faculty Exchange Teachers are selected each May from a pool of experienced classroom teachers who have at least five years of successful teaching experience at the elementary level and are described on performance ratings as "clearly outstanding." The first round of interviews is conducted at the district level. The second round of interviews conducted at the university level is limited to candidates who appeared on districts' short lists from the first round of interviews. The university interview team includes professors, administrators, and current Faculty Exchange Teachers. Final selections are based on assembling a strong mentoring team with comprehensive knowledge,

experience, and expertise. The Faculty Exchange Teachers attend a national level mentor training conference in May. Throughout the academic year they are supported through weekly graduate seminars conducted by SWT faculty. Seminars include mentor training, cognitive coaching training, case reviews and problem solving.

Teacher Fellows Program Benefits

Faculty Exchange Teachers benefit from the program through opportunities to:

- gain additional graduate coursework
- work collaboratively with SWT staff in designing and delivering teacher preparation to induct new teachers into the teaching profession
- participate in seminars through which leadership and support skills are enhanced
- work with university professors to develop teacher preparation courses
- reflect on their own teaching practices and consider new instructional approaches

The school districts participating in the program derive both short and long term benefits from the collaborative partnership. Short term benefits include:

- Teacher Fellows assigned within their district come with a "built in" support system and thus require less district induction support
- districts have the opportunity to "try out" Teacher Fellows with the option (but not the obligation) to hire "field prepared" teachers
- intensive professional development opportunities are provided for the district veteran teachers participating in the program
- providing an exciting renewal experience for veteran teachers

Long term benefits include giving school districts opportunities for significant input into preservice and graduate level teacher preparation programs reflecting the realities of today's classrooms. Faculty Exchange Teachers return to the district renewed with enhanced leadership skills and an expanded view of the field of education.

The program has yielded increased opportunities for communication, collaboration, and the sharing of resources between the university and the participating school districts and between the school districts themselves. University-school district communication is enhanced through regular visits made by the Dean of the School of Education and

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Chair of the Department of Curriculum and Instruction to the participating districts. During these visits they meet with district and school level personnel to discuss the Teacher Fellows Program and general educational issues including restructuring, teacher preparation, and other issues facing public schools today.

School-university communication and collaboration is also enhanced by the participation of district administrators and campus principals in the Teacher Fellows Monday and Saturday seminars. The expertise and resources provided by the school has enriched the program. For example, an elementary school principal demonstrated teambuilding and trustbuilding as she and four veteran teachers provided a day of Ropes Course training; an elementary principal presented authentic assessment that his campus is developing in coordination with the Texas Education Agency on the New Standards project; principals from participating campuses described and demonstrated how their faculties design and deliver programs to meet the needs of diverse student populations; an Austin area superintendent addressed qualities administrators seek in selecting teachers; an Austin Professional Development Academy staff member discussed the educator's need for continuous professional growth and described how her district supports professional development; five classroom teachers presented seminars on portfolio assessment and shared ideas for collecting, selecting and reflecting on student work; and Teacher Fellows and Exchange Teachers participated along with faculty and administrators in student discipline and management training with nationally known trainer Diana Day.

Through the Teacher Fellows Program a number of state, district, and campus leaders have also volunteered their time in making presentations in SWT undergraduate classes. A State School Board member, a Superintendent, a School Board president, a Texas Education Agency representative, a Region XIII Service Center representative, a principal, and a personnel director made presentations in undergraduate classes taught by Exchange Teachers.

High quality clinical and instructional support is needed for effective implementation of field-based undergraduate teacher education programs. The Exchange Teachers contributed to the enhancement of the preservice program by assisting SWT professors in field-based undergraduate instruction. Examples include:

- co-teaching and/or assisting with teaching observations in the nine and twelve hour site-based undergraduate instructional blocks
- teaching sections of reading/language arts courses in field-based stand-alone courses delivered on campuses in the Exchange Teacher's district

- teaching sections of pre-student teaching class on university campus
- assisting with supervision of student teachers placed in the Exchange Teacher's district

In addition, Exchange Teachers participate in various activities that benefit their campus, district, and SWT. These include but are not limited to:

- working with district teachers on integrated curriculum and curriculum work, including realignment of curriculum scope and sequence
- enhancing mentoring skills through video presentations, discussions and practice
- working with district teachers on formulating mission and belief statements
- meeting with principals to discuss needs of first year teachers
- presentations to district principals about needs of first year teachers
- assisting first-year teachers with appropriate assessment and individualization of instruction
- conferencing with new teachers prior to parent conferences and ARDs for Special Education students
- developing district-wide induction program mentoring first-year teachers in addition to Teacher Fellows
- developing and preparing curriculum materials
- demonstration teaching
- leadership development
- conducting action research projects
- working with district teachers on classroom management
- assisting with district grant writing activities providing liaison with SWT Student Teaching Program
- planning ways to enhance cooperating teacher skills in working with student teachers
- participating in Integrated Thematic Instruction training
- self-study, self-growth
- enhancing rapport between their district and SWT and with other participating school districts
- working with individual "at-risk" and special needs children in first-year teachers classrooms
- mentoring teachers in greatest need
- planning district or campus in-service programs for new teachers
- work with district teachers and administrators on needs of first year teachers

- planning more effective orientation for all new teachers
- participating in School Board presentations
- facilitating visitations of veteran and novice teachers to innovative classrooms
- providing instructional technology training support to veteran and novice teachers
- serving on district adoption committees

As this partial list demonstrates, the program provides multiple opportunities for public school and university personnel to learn from each other.

Challenges and Results

Challenges are inherent in complex inter-institutional programs. This is particularly true in the Teacher Fellows Program as it involves a university and ten school districts. The design of the program requires strong support of the college and university administration and an extensive planning and coordination effort with the participating school districts. Over the past two years of implementation of the Teacher Fellows program the following challenges have emerged:

- providing adequate and appropriate avenues for communication
- providing adequate and appropriate coordination of services
- clarifying roles and responsibilities
- providing adequate and appropriate training for Faculty Exchange Teachers
- establishing institutional procedures
- developing inter-school cooperation in recruitment and selection procedures for Teacher Fellows and Faculty Exchange Teachers
- developing university inter-departmental support
- developing problem-solving frameworks for working with administrators and school boards from diverse communities
- integrating and modifying courses
- encouraging faculty to teach in a time and labor intensive program given university reward structure

All of the above challenges have been successfully addressed through the development of an on-going and effective means of communication and close collaboration with the partner schools and with other units within the university. The above challenges, in many respects, represent the "growing pains" not unlike those encountered in other new and innovative programs.

The SWT Teacher Fellows Program is an innovative collaborative

arrangement that results in a win-win situation for the university, school districts, and teachers. The university gains additional teaching resources. Participating school districts become collaborative partners in the teacher-preparation program. The partnership offers both long-term and short-term benefits to participating districts. Teacher Fellows come to the district with a "built-in" support system; districts have the opportunity to hire "field-prepared" teachers; intensive professional development and renewal experiences are provided for Faculty Exchange Teachers; significant input into preservice and graduate level teacher preparation programs benefit from the input and perspectives of the master teachers; and Faculty Exchange Teachers return to districts with enhanced leadership skills and an expanded view of the field of education. Additionally, first year teachers have intensive support in their induction year and earn a masters degree in education.

The successful implementation of the program requires careful planning, development, and coordination and a strong commitment from each of the participating institutions. Even though the development work is extensive and the challenges are numerous, the opportunities and benefits of the program are well worth the effort.

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Contexts of Technology Partnerships: Professional Development and Change

Cathy Gunn

This paper is based on reaction to a 1995 Board of Director's report by the American Association of Colleges for Teacher Education (AACTE) that called for college of education faculty to pro-actively meet the challenge of new forms of professional development to address national political concerns in the United States as it effects K-12 school reform, teacher education, and universities. This paper describes a Northern Arizona University telecommunications, multimedia and environmental education professional development partnership and discusses innovation efforts to address AACTE challenges.

The number and kinds of innovations introduced to teachers require change facilitators who have "goals and content that are explicit, operational, and relevant to the needs of teachers" (Bennett, 1994, p. 156). To this end, a telecommunications and multimedia inservice project at Northern Arizona University (NAU) included the study of an evolving professional development venture that connected university-based preparation with ongoing education of teachers.

Imig calls for professional development that is "radically different than the 'sit and git' inservice that occurs now" (1995, p. 12). He promotes inservice that includes the following characteristics or components:

- school based
- needs based
- teacher determined
- continuous
- integral to the life of the school, and
- aligned to K-12 content and performance standards.

Each of Imig's recommended components requires changes for many teachers: changes in thinking and knowing, attitudes, perceptions, ways of doing and being a teacher, and schooling culture. Add to this list the introduction of several new technologies such as multimedia and telecommunications, and professional development becomes even more complex.

The professional development of teacher educators in the area of educational technology involves the school context and rate of innova-

tion as much as the facilitation of desired behaviors resulting from learning new technologies. Bennett, for example, writes that the "organizational context or environment of staff development efforts significantly influences the rate and extent to which teachers implement new technology into classroom practice" (1994, p. 153). In another approach, the Concerns-Based Adoption Model (CBAM) asserts that "with diagnostic information the change facilitator can make decisions about how to use resources and provide interventions to individuals to facilitate the school improvement process" (Hord, Rutherford, Huling-Austin & Hall, 1987, p. 10). We found in the study described below that teachers put innovations to use in different ways. As Hord et al. (1987) observe, "a number of patterns emerged, each characterizing a different use of the innovation" (p. 13).

Faculty at teacher preparation programs are urged by Imig (1996) to engage in serious examination of the intersection of teacher preparation, the new K-12 content standards, and school reform. Imig hints of "decoupling" of colleges and universities from school and school district inservice education to meet the above characteristics of professional development. It is imperative, then, that college of education faculty pro-actively meet the challenge of new forms of professional development, and prepare to defend their actions and the theoretical underpinnings of those efforts. This paper describes a professional development partnership project, research connected with the project, and its intent to pro-actively move beyond traditional forms of inservice efforts. We paid careful attention to organizational context and the nature of innovations introduced into the environment in the NAU professional development partnership described. But most importantly, we attempted to ignore "how we usually do it," and we listened to teacher concerns.

Project Description

Content

In our professional development project national standards in geography, math, and the arts (music, drama and art) were brought together with Arizona State Department of Education Environmental Education (EE) guidelines to address concerns that schools should be developing and using coherent integrated curriculums. State EE guidelines were chosen in an effort to increase teacher attention to promoting and maintaining a sustainable future. EE seems a natural content for integration. Integration of the content areas of geography, math' and the arts were grant mandated but also fulfilled a need to integrate an area such as environmental education across diverse curriculum content. This unusual marriage of disciplines presented a real-

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world problem for teachers as they investigated their own practice and worked towards an integrated curriculum. Multimedia and telecommunications technologies seemed to be naturals in supporting integrated curriculum development and in supporting a developing community of teachers from diverse and remote locations.

Profile of Participants

Twenty-four teachers from six geographically diverse regions of northern Arizona were selected to participate in the Telecommunications, Environmental Education, and Multimedia (TEEM) project. Teacher teams met face-to-face three to four times a year on the NAU campus and met electronically through a project listserv administered at NAU. Project staff consisted of a full-time project direc-tor, a two-member evaluation team, and three part-time consultants, experts in telecommunications, technology/multimedia, and EE.

Several participant schools were located in remote regions in the Navajo Nation. Only nine out of twenty participants lived locally. The project design included several on-campus seminars, but a majority of the work was done via e-mail and listserv discussions, coupled with visits to school locations to work with teachers in their own class-rooms in the project focus areas.

Outcomes of Project

A four-day orientation seminar held in July 1995 at NAU focused on technology, curriculum, and national/state standards. Integral to this seminar was time spent on establishing a collective vision for the project, which teachers in the project were encouraged to refine throughout.

During the first year of the project, teachers worked with instructional design specialists, programmers, artists, and content-area specialists to take classroom lessons/units, activities, products, and resources to prepare instructional modules around the theme of waste management. Modules were linked and reproduced on a CD-ROM to provide resources for participant teams for inservice purposes in their schools. Instructional modules consisted of topics such as documentation, change and innovations for a teacher audience, direction and examples of how to use multimedia technology to support teaching and learning, the use of telecommunications to support teaching and learning, assessment, and topical vignettes around the one-computer classroom, equity issues, why use multimedia, and so forth. A World Wide Web (WWW) home-page linked to resource locations has been set up as a repository for developed inservice materials. An unanticipated outcome was the development of individual teacher and school HomePages, which are linked to the TEEM HomePage. In the final

semester of the two-year project, teacher-participant teams planned and provided nine hours of professional development inservice to their peers using the CD-ROM disc to develop school-wide integrated environmental education plans supported by telecommunications and multi-media technology or to introduce multimedia and telecommunications to teachers in their schools.

Project Evaluation

The project was driven by participant and school needs and an internal evaluation team developed a formative evaluation component to assess how successfully these needs were addressed. A series of surveys and interviews with inservice participants, project staff, school administrators and technologists, and advisory board members were conducted throughout the project. Artifacts and evaluations from each seminar were collected, listserv activities were monitored, and online discussions were archived. Journals were maintained by the project director, technology specialist, and seven volunteer participants and were reviewed by the project evaluators.

An external foundation-appointed grant evaluator made site visits, and quarterly reports were provided to her by the project evaluation team. Included in the quarterly reports were all archived materials, including documents of all project activities. The quarterly reports served as a means for reporting both expected and unexpected outcomes, raw aggregated data, an analysis of trends and themes, journal summaries, and direct responses to external review questions.

Format and Structure: A Teacher Directed Process

Innovations Made Explicit

One theme that emerged from the internal evaluators' analysis of data collected during the first year of the project included innovations and the change process, and this is the focus of this paper. Both project staff and participants faced similar difficulties in approaching the change process and the inherent challenges of the project.

Each team collectively, and in some cases individually, expressed frustration and guilt. One teacher commented, "I think I should drop out of the project. I feel guilty that I haven't gotten my students online to the Internet. I am getting a phone line into my classroom next semester, but I am not taking them into the teacher work room and getting *them* online." This statement indicated to us that one teacher's perception of her growth and contribution to the project was clouded by a narrow view of the level of success along the continuum of this innovation. Many of her project colleagues were still struggling with *any* kind of access to the Internet. Figure 1 shows the continuum of use within the

project's telecommunication innovation, with teachers in the project falling into all six cells. At the end of one year into the project, teachers had moved very little from one cell to the next.

Figure 1. Telecommunications Innovation Continuum

Innovation #1: Telecommunications - Levels of Use

training	access	e-mail	listserv	student access	integrated into lessons

The project staff listed and counted innovations inherent in the grant project and found clear reason for participants to be confused and to feel conflict in their levels of participation. It was critical to provide all participants with this same information. Hord, et al. (1987) identified seven kinds of concerns that users or potential users of an innovation may have. Figure 2 is adapted from those original stages of concerns and includes specific connections to technological innovations. Individual participants in this project were likely to have some degree of concern at all stages at any given time and with any given innovation.

Evaluations of innovations typically focus on the effectiveness of the innovation (Hord, et al., 1987). Nine innovations were identified by both project staff and participants, which may help explain why chaos and conflict seemed to rule the project from time to time. Examples of innovations identified with real and anticipated levels of use are shown in Figure 3 (curriculum-based innovations), Figure 4 (telecommunications-based innovations) and Figure 5 (multimedia-based innovations). These innovations lent themselves to an evaluation of process rather than an evaluation of effectiveness of the innovations themselves.

Curriculum-based innovations (Figure 3) centered around three different areas: teacher integration of environmental education into classroom practice, school-wide planning of environmental education integration, and methods for curriculum integration from specific to general (i.e., a continuum of teacher bound by a discipline area to a holistic-centered curriculum in a non-traditional school setting). A participant might have been aligning EE goals and concepts into her present curriculum in Innovation # 1, in a school with no EE plan with Innovation #2, and within a chemistry classroom in Innovation #3 (overspecialization).

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Figure 2. Stages Of Concern (adapted from Hord, et al., 1987). Includes specific connections to technological innovations.

STAGES AND EXPRESSIONS OF CONCERN	CONNECTION TO TECHNOLOGICAL INNOVATIONS in TEEM PROJECT*
Orientation & Informational (I would like to know more about it.)	Participant's awareness grows to include knowledge of an innovation's general characteristics, effects, and requirements for use; participant does not perceive the innovation as relevant to herself but has interest in learning more detail if necessary. She learns about the potential of multimedia and telecommunications.
Personal buy-in (How will using it affect me?)	Participant perceives need to be involved with innovation but is uncertain about adequacy in meeting its demands and about its effect on organizational systems for rewards, decision making, etc. Participant wonders what effects the innovation will have on her personally in terms of money and status. (How will multimedia and/or telecommunications affect me?)
Management concerns (I spend all my time getting ready.)	Participant begins to focus on mastering the processes and tasks of using the innovation well. She learns to use multimedia and/or telecommunications in the classroom.
Impact of change (How is change affecting my students?)	Participant begins to see innovation's impact on her sphere of influence–relevance to student performance is perceived. Participant experiences the positive effects of the change. Focus is on how multimedia and/or telecommunications affect the students and self.
Collaborating (I am relating what I am doing to what other teachers are doing.)	With experience comes confidence. Participant is now ready to exchange ideas, discuss difficulties, and cooperate with others using the innovation. There is an interest in an interaction with others about multimedia and/or telecommunications.
Refocusing (I have some ideas that might work even better.)	Participant wishes to explore additional benefits from the innovation. These might be made possible by advanced training, changes in procedures, or tie-in with another technology. The innovation and its benefits become routine. Participant is open to using the technology in a new and unique manner.

*Critical analysis done by Carol Bly, Sacramento City Unified School District

Figure 3. TEEM Project Innovation Components.
(Each column in Innovations #1 and #2 represents a continuum from non-use or orientation on the left to full implementation on the right. Innovation #3 columns indicate a continuum of a specific discipline on the left to general integration on the right.)

Innovation 2: Environmental Education—Teacher's Levels of Use

awareness of EE goals & concepts	identification of EE goals & concepts in what you already do	development of lessons specific to your classroom using EE goals & objectives	combine EE goals with content area goals and/or standards	Integrate EE goals & concepts into curriculum	work towards school-wide plan of EE integration

Innovation 3: School Environmental Education Content—Levels of Use

No EE content or interest in school-wide plan	Isolated teachers teach EE concepts without school plan	School is committed to developing EE plan and planning is in progress	School has EE plan in place

Innovation 4: Curriculum Integration—Levels of Use

over specialization	subject centered	disciplinary	intra-disciplinary	multi-disciplinary	inter-disciplinary	integrated	holistic

Figure 4 provides information on four different innovations in the area of telecommunications: equipment and Internet access, kind of Internet access, use of telecommunications, and use of the project listserv specifically. All participants had some kind of access, although that access was limited and often cost-prohibitive. One participating school district located on the Navajo Nation was approximately three hours from the university and Internet access provided by NAU was only available through long-distance telephone service. For the purposes of this project, paying long-distance phone charges for access to the Internet was the same as not having access. There was also a difference in the kind of access available to participants. Nine of twenty-four participants had dial-up access to the Internet through the university, and as such, had no access to the WWW. All twenty-four participants had access of some sort, and all were subscribed to the project listserv. However, only five participants posted messages on the listserv, and of those, only one was consistent in his use of the listserv. It should be noted that this listserv was intended as the project's main communication source.

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Figure 4. TEEM Project Innovation Components.
(Each column represents a continuum from non-use or orientation on the left to full implementation on the right.)

Innovation #5: Equipment & Internet Access—Levels of Use

No access available	Modem and provider to Internet are available but participant does not access	Modem and provider to Internet are available and access is occasional	Modem & access to Internet are used for listserv and mail at least once a week	Modem & access to Internet are used for listserv and mail at least once a week plus student use

Innovation #6: Kind of Internet Access—Levels of Use

No access	Long distance charges to text-based NAU server or graphical interface; access paid by teacher	text-based (no WWW access) NAU server w/local access & no fee to teacher	graphical WWW Interface (use district or commercial provider access such as AOL, SedonaNet, PrimeNet); cost covered by district

Innovation #7: Project Listserv—Levels of Use

Never connects to listserv or Internet access	Occasionally reads listserv messages (less than once a week)	Reads listserv daily to once a week	Posts occasional message for information and/or sharing	Posts frequent messages and information for sharing

Figure 5 shows levels of use of multimedia by project participants from orientation to full implementation. Multimedia was deemed the most successful innovation in the project. Each teacher team received a Liquid Crystal Display (LCD) projector for their school district. In past telecommunications partnerships directed by the author, it was recognized that teachers had no way to display a computer screen when they brought the Internet or multimedia applications into classrooms. Teachers also had no way to inform administrators, site-based councils' or school boards of technology needs. The LCD projectors were used at all participating school sites, and several teams found them effective tools to leverage Internet access, to increase funding for technology purchases, and to showcase efforts of their students. An unanticipated outcome of the project was that with the help of the project's technical specialist, teachers unearthed unused equipment from storage closets, received training on equipment, and found applications useful to their classroom teaching or to students.

The identification of project innovations and levels of use by participants, and then reflection on the innovations by participants and project staff led to a pivotal point in the project in early February of the first year. The project could be characterized by the term "circling" from the first seminar to this pivotal point. Circling in the context of this project can be defined as 1) facilitators' clarity in giving direction to a

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shared vision and 2) facilitation planning as teacher and need driven. On reflection, the circling was both paralyzing, necessary, and when breakthroughs occurred, exhilarating.

Figure 5. TEEM Project Innovation Components.
(Each column represents a continuum from non-use or orientation on the left to full implementation on the right.)

Innovation #8: Multimedia as a Teaching Tool—Levels of Use

awareness	training	use of projection device and still camera	use of other peripherals (scanner, video, etc.)	use for teaching and/or demonstrations	development with or by students

Innovation #9: Multimedia Equipment—Levels of Use

No multimedia equipment available	Multimedia equipment available but not used	Multimedia equipment available and used for teaching and learning by teacher participants when appropriate

From a self-report at the February seminar, all teachers were at different places along the continuum of many innovations, and progress was noted in one or more innovations for every participant or school. Teacher concerns brought out in the open those factors that cannot be controlled by the teachers themselves, highlighting the need for school change to occur at a higher plane—at the level of school culture. An internal evaluator noted that by the end of this session, "Teachers were more purpose oriented, less edgy, collegial in interaction; discourse was professional rather than personally focused [more than in previous seminars]." When factors out of teacher control were made explicit, participants seemed to relax and settle in to the project with renewed vigor. When project staff recognized and addressed the sheer number of innovations and the possible levels of use for any one innovation directly with teacher teams, feelings of chaos and confusion lessened as comfort with the complexity increased. We recognized that the pivotal point reached in early February was just one of many to come, taking us from one circling experience to another.

Teacher-directed Process

Probably the most frustrating component of this project for teacher teams was the expectation that they would define direction. Participants were obviously frustrated and uncomfortable during the many hours of dialogue at the first (July 1995) seminar. These discussions resulted in most participants asking themselves and each other the questions: "What is it we're about?" "What is it we're supposed to do?" "Why are we doing this?" and finally, "How are we going to pull this off?" Participants told us: "Just tell us what to do!" This was an uncom-

fortable position for all, and it would have been easy to follow a prescribed format and lists of what to do next. Included in these discussions was a teacher's reflection that "this must be how our students feel when we give them more responsibility than they are used to."

We carefully addressed participant needs by making every phase of the project and each new step explicit. A monthly newsletter addressed the process used in planning seminars and how evaluations are used formatively to inform the next step. Next steps were shared with participants. In response to a question posed on the project listserv, one teacher wrote that what did not seem to be worthwhile to her when she wrote her evaluation of a seminar took on new meaning when she looked at the bigger picture.

A second example of circling on teacher-directed structure and format of the project occurred in early February of the first year. The project staff's main task was to obtain teacher feedback and to actively construct additional direction for each new project phase. At the same time the project staff had a breakthrough on the number and extent of innovations, we were not getting feedback requested on what EE concepts were already taught in participant classrooms or schools to provide teacher buy-in to an environmental theme for the CD-ROM product. An evaluator attending these staff planning sessions noted the staff's struggle to want to "take over and get the project done right." Eventually project staff shifted in their thinking and put the control of direction and products back in the hands of teachers. The evaluator noticed a comfort zone developing for project staff at this juncture of the project—being able to tolerate change and continue the process of making and learning from mistakes as facilitators. At the February workshop, the evaluator documented a change in ownership: "The project director moved from using 'I' to 'we.'" Circling around control at the time was stressful but obviously necessary for staff to get to a comfort zone in the process and to allow a shift in ownership.

Probably the clearest illustration of teachers taking charge was observed during a two week seminar held at NAU in June 1996. By the middle of the first week, teams had formed that were not school-based but were guided by interest and talents and fell into two main areas, lesson development and technical. Teachers began requesting specific support for their tasks of developing lessons: access to more portable equipment, training on presentation software, and resource information. They assigned tasks to other participants: "I need information from the WWW on . . ." "Bring your LCD projector tomorrow and we'll brainstorm . . ." Lesson developers rounded up laptop computers and could be found huddled over national standards guides and other EE resources. Technical teams took directions from lesson developers. The participants working on the technical side of the project—developing a prototype for a CD—gave daily updates for what they could do with

their authoring program, and the rest of the participants made demands for what they wanted to see the technology accomplish. Closing sessions each day evolved into updates and demands: "Here's what we've accomplished today, now we need (or want) . . ." My task as director of the project became superfluous, and I began taking directions from participants. At the close of the two week seminar, teachers stated their need to follow the project throughout the summer and to the actual burning of the CD—they expressed clearly that they were not ready to give up control for the process or the product under development. Six teachers donated time throughout the summer to assist the project's technical consultant in the actual programming of the CD. Those who could not give that kind of time requested weekly updates so they could still be part of the production.

The teacher-directed process used in this project can be summed up by a teacher participant:

> My perceptions of a teacher-directed process over the last 2-1/2 weeks has gone through several stages of transformation, kind of like an insect going through the stages of metamorphosis. When we started I wanted Dr. Gunn to give us all week little assignments and tell us exactly what we should be doing. Instead we were treated as professionals and given the license to do what we were best at doing.
>
> At first, this process was frustrating to me, I wasn't sure where my place was in this process. However, within a few days the group seemed to have fallen into step with one another and we were off and running. Lesson plans were being developed by individuals and being edited by peers. We were putting ideas on the table and pulling our resources together to develop a curriculum for this project. I felt like we became an interactive team, pulling in the same direction to reach our goal.
>
> I don't remember anyone saying to me, you do this! Instead, we all seemed to work well together and that made us productive. Allowing this to be a teacher-directed process was scary at first, however at the end of the 2-1/2 weeks it feels gratifying and empowering. This is an experience I want to bring into my classroom for my students.

Conclusion

This is not "sit and git" inservice. Facilitation of change is critical; teacher input and the process of change is valued. We were tempted at times to direct content, structure, and the end product. By valuing and attending to the circling process, the project truly remained school based, teacher determined, and aligned to K-12 content. The

professional development environment and careful attention to and analysis of teacher concerns and diverse levels of use of innovations were guiding indicators to the health of this project. Using these guidelines gave the project an ever-changing flavor, thus, providing participants and project staff the unsettled feeling of not knowing what would happen next. We attempted to view changes positively and confidently, but it was also comforting to be reminded that "all real change involves passing through zones of uncertainty . . . of being lost, of confronting more information than we can handle" (Robinson, 1995, p. 109). The intensive qualitative evaluation accompanying the TEEM project provided data for ongoing facilitation of the process and product outcomes, providing the opportunity to reflect on the technical and non-technical innovations and to modify professional development according to school and teacher needs. Also critical to colleges of education, however, is documentation of the professional development processes. Technology innovations and change processes may be just as great a challenge for the change facilitators as it is for teacher participants.

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Project SIMULATE: Technology Staff Development for Inservice and Preservice Elementary Teachers[2]

Jo Cleland, Ray Buss, Ron Zambo, Keith Wetzel, and Peter Rillero

Project SIMULATE, a professional development program for inservice and preservice elementary teachers (N=40), was designed to provide knowledge and equipment for using multimedia simulations and language arts activities to improve science and mathematics instruction. Preservice undergraduates and their mentor teachers from a K-6 school, where a field-based program is already well established, developed instructional units focusing on conceptual development and process skills. Evaluation data indicate that the 60-hour summer instructional program coupled with monthly school year meetings produced significant increases in confidence in computer use, computer competency, personal efficacy, level of computer usage, and the variety of software usage.

In no area are school-university connections more mutually beneficial to all partners than in the development of technology-rich curriculum. Preservice teachers glean strategies from experienced teachers who know the existing curriculum; inservice teachers are revitalized by the enthusiasm and current technological knowledge of undergraduates; and university professors are given an arena in which to employ the techniques they advocate in their coursework. The ultimate benefactors are the elementary students who have increased oppor-tunities for relevant and motivational learning experiences. Project SIMULATE was designed to provide preservice teachers with models of effective curriculum development and instructional delivery in a public school setting where they could use multimedia technology under the guidance of school-site and university mentors.

Recommendations for national reform in the *National Science Education Standards* (NRC, 1996), the American Association for the Advancement of Science *Benchmarks in Science Literacy* (AAAS, 1993), and *The National Council of Teachers of Mathematics Standards* (NCTM, 1989) indicate the need for students to prepare for the 21st Century by developing skills in problem solving, decision making, investigative inquiry, real-world applications, and justification of

[2]This project was funded by an Eisenhower grant from the Arizona Board of Regents. The conclusions are those of the authors and no endorsement by the Arizona Board of Regents should be inferred.

solutions. Multimedia technologies appear to be an excellent match to the type of learning implicit in teaching these five skills. They have the capabilities of allowing students to participate in experiences beyond the confines of time and space, conduct focused investigations, access primary sources, interpret data efficiently, and present their findings through professional-looking media (Office of Technology Assessment, 1995). In many cases, however, teachers are not prepared to utilize technology resources.

The need for the enhancement of technology training for both teacher and students has become a major national issue. On "NET-DAY 96" (June 1996), U.S. Secretary of Education Riley released the national long-range plan for educational technology mandated by Congress in the Improving America's Schools Act of 1994. He listed these characteristics of technology-rich schools:

- "concentrated, conscious, and explicit planning among school leaders, families, and students to create 'learning-centered' environments;"
- "challenging standards for student achievement . . . clearly articulated;"
- "restructuring of the school to support the learning-centered environment and achievement standards;" and
- "near universal access to computer technology."

He shared the following goals toward making all schools technology-rich:

- "All teachers in the nation will have the training and support they need to help students learn using computers and the information superhighway."
- "All teachers and students will have modern multimedia computers in their classrooms."
- "Every classroom will be connected on the information superhighway."
- "Effective software and on-line learning resources will be an integral part of every school's curriculum."

The challenge of modernizing classroom practices to meet these goals remains problematic. Simply placing computers on school campuses is insufficient. "The teacher often has a functional computer program but no information or materials to assist with integrating the computer program into an effective lesson" (Shaw, Okey, & Waugh, 1984, p. 9). Project SIMULATE attempted to provide practicing teachers both the equipment and staff development necessary for effective implementation of technology-rich instruction.

Partnerships in Education

Teacher preparation programs must prepare preservice teachers to integrate the computer as a natural and efficient tool in their teaching (Friedler, Merin, & Tamir, 1992); too often, however, there is a discrepancy between what is taught in preservice courses and what students observe in their K-6 field experience classrooms. This disparity is of particular concern, because researchers have found that student teachers adopt the beliefs and use the strategies of their cooperating teachers, not those of their university professors (Calderhead, 1988; Hoy & Woolfolk, 1989; Kagan, 1993). It is essential that preservice students participate at practicum sites where pedagogy and technology are linked.

Concurrent modeling and support of technology by university faculty affirm practitioners' commitment to the instructional use of multimedia. According to Baumbach and Schonborn,

> Many College of Education faculty have long recognized the need to integrate computers into the teacher education curriculum. However, many faculty have limited expertise in the use of technology in teacher education or in public education since their careers and training did not include technology. While the feeling is strong that faculty need to model the use of technology in their courses, few have seen models to emulate. (1990, p. 217)

University professors must not merely promote the use of technology, but practice it.

Collaborative staff development offers many advantages. When inservice teachers, preservice teachers, and professors share their expertise by developing materials for immediate use in real classrooms, all three populations increase their understandings of appropriate instructional practices and current school cultures.

Use of Multimedia Simulations. Although other forms of technology were used in the project, emphasis was placed on simulations, i.e., replications of reality. During simulations, students are highly motivated (Schwabach, 1994), recognize the long-term relevance of their learning, and internalize concepts through hands-on involvement. They can conduct investigations not normally possible in a school setting by augmenting their hands-on involvement with experiences through which they sense ownership of genuine problem-solving (Lavoie & Good, 1988; Berlin & White, 1986; Magin & Reizes, 1990). Through these opportunities, students learn both content-specific and general problem-solving techniques (Hunt, 1990) and develop a broad range of higher order thinking skills (Simmons & Lunetta, 1993; Cognition and Technology Group at Vanderbilt, 1990 & 1992). Multimedia simulations can be conducted in all classroom grouping

configurations: individual, dyad, small group, and whole class (Friedler et al., 1992). Through Project SIMULATE inservice and preservice teachers made a concerted effort to facilitate relevant learning for their K-6 students while expanding their own repertoires of educational technologies.

Concentration of Participants at a Single Site. Participation by a critical mass of teachers at a single site increases the potential for systemic change (Fullan & Miles, 1992). The preservice and inservice teacher participants had the opportunity to dialogue daily about technology and curriculum; personnel from the university and district, on site regularly, were available to provide additional technological and pedagogical assistance; and learners received daily support and encouragement from one another. Single-site staff development for preservice and inservice teachers offered three major advantages: efficient sharing of resources, a shared vision of instructional effectiveness, and optimal support for participants. The hope was to establish a schoolwide culture grounded in solid pedagogy and technology in which inservice teachers could become more effective mentors to each successive group of university students, who in turn would be better prepared to become future change agents within the teaching profession.

Project Description

Project SIMULATE attempted to initiate systemic change in educational practices for preservice and inservice teachers as well as university professors. Real-world applications of current technologies appear to provide optimal opportunities for the kinds of experiences encouraged by national standards. For this instructional approach to be effectively implemented, educators need knowledge, equipment, and collegial support. Project SIMULATE was an effort to give these advantages to the participants in this site-based, collaborative program. The intent was to create a community of technology users. The university students observed the current techniques for teaching science and mathematics in their methods courses being practiced in classrooms. Preservice and inservice teachers supported one another in their quest to expand their knowledge. Professors became integrally involved in making technology a part of real instructional settings.

Goal and objectives. The goal of the project was to provide an exemplary preservice traineeship program that offered opportunities for future teachers to work collaboratively with their practicing mentors to develop and implement technology-rich thematic units focusing on mathematics, science, and language arts. The specific project objectives were:

1. To provide professional development for preservice teachers and their practicing, mentor teachers in using multimedia materials for mathematics and science.
2. To assist preservice teachers and their practicing, mentor teachers in collaborative production of integrative units centered on multimedia materials, thereby linking current technology and pedagogy.
3. To facilitate preservice and mentor teachers' application of multimedia-based instruction in their classrooms, develop-ing children's skills in inquiry, investigation, problem-solving, and cooperative learning.

Method. Project SIMULATE was a multi-methodological, exploratory project. Both quantitative and descriptive data were collected using computer competency tests, questionnaires with both Likert-scale and open-ended items, journals, technology usage logs, interviews, instructional units, and classroom observations. These data were analyzed to answer questions about participants' levels of competence, confidence, and implementation, and about the effectiveness of the project for university students, and teachers.

Population. The study was conducted in conjunction with a field-based undergraduate education program, housed at the Orangewood School of the Washington Elementary School District in Phoenix, Arizona. The total of 40 participants was comprised of preservice and inservice teachers. The fourteen Arizona State University West education students included six student teachers and eight interns; twelve of the fourteen preservice students were female. Twenty-six (26) inservice teachers at Orangewood Elementary participated in the project. Of these, twenty-four were female.

Orangewood Elementary is a K-6 school with an enrollment in excess of 800 students. Within the community, there is a rising number of minority children and children from low-income households. Slightly more than 50% of the students are eligible for the federally funded free/reduced lunch program, and 20% of the total population are Hispanic, African-American, Native American, or Asian.

Collaboration. In a true collaboration model, leadership, training, and equipment were provided by both the university and the school district. Three of the professors on the project team were instructors for the field-based program at the public-school site where the project was implemented, and a university graduate assistant provided technological assistance. The director for instructional materials in the local district led the summer institute and included on her staff teachers from the district with expertise in the use of technology in K-6 classrooms. The principal, a classroom teacher, and a classified technology assistant at Orangewood School were available for

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continuing curricular and technological support. To facilitate the staff development and delivery of the technology-based integrative units, which were the culminating team products, the university provided multimedia equipment and the local school and university shared responsibility for providing software.

Prior to the beginning of the project, preservice and inservice teachers were teamed according to the field experience assignments for the upcoming semester. Participation was voluntary and all participants received stipends through an Eisenhower grant from the Arizona Board of Regents. Because all of the students were to become members of the cohort taking their methods courses on-site at Orangewood School, the project was designed to enhance an on-going program. One major assignment during this on-site semester for elementary and special education undergraduates is the construction of a thematic unit for delivery in students' internship classrooms during two weeks of the semester. A special benefit of Project SIMULATE was the opportunity for university students and their mentors to begin a professional and purposive relationship two months ahead of the normal schedule. The teaming of practicing teachers and university students also offered a healthy mix of differing experiential levels in the use of technology and the implementation of curriculum.

Staff Development. Staff development was provided through a summer institute divided into two one-week sessions, one in June and a second in August. In June, the participants developed their technological skills and learned pedagogical theory. The activities of the institute were selected based on the project's stated goal and objectives, as well as the competency levels of the participants. Using interviews, surveys, and hands-on tests, we assessed individual participants' experiential levels in the use of technology and current instructional practices at the very beginning of the project. Training was then structured to provide participants the technological confidence and skills to implement innovative instruction. Participants learned the basic skills necessary to operate computers, CD-ROMs, and laserdiscs and to utilize a variety of software applications.

Pedagogical staff development included sessions on using simulations effectively, stimulating higher order thinking skills, and designing integrative curriculum. Participants viewed and explored multimedia programs with a focus on inquiry into science and mathematics concepts. The programs were selected for their alignment with the district and state academic standards, their potential for prompting students' decision-making and problem-solving, and their capacity to serve as the core of interdisciplinary units. Some multimedia resources were available through the district media center, but the majority were part of the university's contribution to the project. The following are examples of the types of programs utilized: *Fizz and*

Martina (Tom Snyder Productions), *Great Ocean Rescue* (Tom Snyder Productions), *BioSci I & II* (Video Discovery), Oh, Deer! (MECC), *Zookeeper* (Davidson), *Designosaurus* (Britannica), *Decisions, Decisions: Environment* (Tom Snyder Productions).

Activities across a wide range of levels were available, so that participants could expand their knowledge as suited their individual needs and comfort levels within a workshop structure. The workshop design allowed the individual student-teacher teams ample time for exploration and adaptation of materials to match the themes, topics, grade levels, and instructional approaches appropriate for their own situations. Sheltered practice time was scheduled daily during which participants self-selected extra tutoring/reteaching, extended personal practice, or exploration beyond the class coverage. At these times, the ratio of coaches to participants was approximately one to eight. Learning was further increased as colleagues mutually benefited by coaching each other.

After the June sessions, teachers were encouraged to take on loan for the summer both the hardware and the software. Participants took this opportunity to practice the skills they had learned during the first half of the institute and to explore possible resources for the units they were planning for fall implementation.

The August portion of the institute was devoted primarily to the development of thematic units. Each team developed plans incorporating the use of at least one type of multimedia and one simulation into the science, mathematics, and language curricula of the school district. Some teachers augmented their existing thematic units while others developed new units using the multimedia materials discovered during the institute. Emphasis shifted from a focus on participants' production skills to the facilitation of K-6 students' hands-on learning experiences using technology such as *Hyperstudio, KidPix Slides*, *Inspiration*, and the *Claris Works Slide Program.* The final day of the institute included a family workshop during which children from the community and their parents had an opportunity to preview and provide feedback on some of the activities the teachers had prepared for use in their classrooms.

In Fall 1995 the teaching teams implemented the instructional techniques they had learned as they delivered the thematic units developed during the summer institute. Additionally, interns incorporated their technology-based plans into thematic units assigned as part of the curriculum for the university coursework in this on-site professional development school.

Support System. Concentration of the efforts at a single-site provided an optimal support system, because communication about technology-rich instruction was a daily part of the informal and formal culture of the school during casual conversations, grade-level meetings, faculty meetings, mentor-mentee meetings, and university classes. Four

follow-up meetings were scheduled during the semester with the specific purpose of providing opportunity for participants to request help, access more resources, share success stories, encourage one another's efforts, and exchange insights about improving their instructional use of technology. Teachers who opted to complete extended requirements for university graduate credit made brief presentations to demonstrate their use of technology in the classroom. Project leaders also provided support as they reviewed participants' usage logs, read their journal entries, and conducted classroom observations.

Advantages. The structure of Project SIMULATE offered six key advantages:

1. Classroom teachers were exposed to the latest pedagogy and technology and had access to support while implementing new practices in their classrooms.
2. All participants practiced their implementation of new learning at a single site, affording the critical mass needed for effecting change. Participants communicated daily and assisted one another both technically and motivationally.
3. Education majors were placed in sites where their cooperating teachers had pedagogical and technological staff development during the summer institute and could model these current instructional strategies for preservice teachers.
4. The cooperating teachers at this school mentor approximately 35 students each semester. As they continue to model the practices they have acquired, successive groups of education majors will benefit.
5. University professors improved their own integration of technology into their undergraduate methods courses. This integration will occur each semester, so the effect will be on-going.
6. The high percentage of female participants increases the potential not only for these teachers but also for their female students to gain confidence in science, mathematics, and technology.

Assessment Instruments

Multiple assessment instruments were selected or designed to evaluate the effectiveness of a traineeship program for inservice and preservice teachers. Participants completed questionnaires to provide baseline data about their individual perceptions of the role of technology in education. These questionnaires included Likert-type scales and open-ended questions. At the close of the project, the same instrument was administered to allow pre- to post-test analysis.

At the start and end of the institute, each participant took a hands-on computer competency test. At the start they also completed the *Micro-computer Utilization in Teaching Efficacy Beliefs Instrument* (MUTEBI) developed by Enochs, Riggs, and Ellis (1993) to assess two variables: Personal Efficacy, i.e., the subject's sense of competence in using computers to teach science and mathematics; and Outcome Expectancy, i.e., his/her perception of the effect of technology-based instruction on students. The efficacy instrument was administered four times: as a pre-test, at the beginning of the August institute sessions, at the conclusion of the summer institute, and at the close of the project.

On the last day of the institute, families from the local school attended a workshop during which students and parents field-tested the materials the inservice and preservice teachers had developed during the institute. At the close of the morning, the students with their parents completed a Likert-type scale and answered an open-ended question on their perceptions of the experience. Data were analyzed to determine levels of motivation and concept-learning.

During the institute, participants made daily entries in personal, word-processed journals, evaluating the effectiveness of the instruction and the value of the newly learned techniques for use with her/his students. These responses guided the institute leaders' planning for the daily sessions and also helped determine the types of support needed during the school year. Between the June and August sessions of the institute, participants made similar entries on a weekly basis. They indicated what they had tried, what they had learned, and how they expected these understandings would benefit students in their classrooms. During the school year, continued weekly journals offered a descriptive picture of participants' implementation of the innovations they learned during the institute. Analyses of these journal entries determined the participants' levels of use, the instructional values the activities have for elementary students, and the degrees of comfort teachers and students experienced as they incorporate technology into the science and mathematics curriculum.

During the summer and the school year, each participant logged his/her own time using the different types of technology and specifying the ways s/he had used it, for instance, for unit and lesson planning, assessment procedures, classroom instruction, class records, and so forth. During the semester, each teacher-intern team kept a weekly log of multimedia use in the classroom, indicating what software was used and by whom, that is individually, in small groups, or as a whole class. Logs from the computer lab were also collected for comparison with the same information from the preceding school year. Data from all logs were quantitatively analyzed.

Pre- and post-interviews of a random sample of 10 of the 26 teacher participants was conducted using *Levels of Use of the Innovation*

(Loucks, Newlove, & Hall, 1975) to determine any changes in the degree to which each was integrating technology into the science and mathematics curriculum. The instrument provides both data about self-perceptions and objective criteria for determining levels of implementation of the techniques presented on integrative use of technology in science and mathematics instruction.

Each integrative unit developed during the institute was analyzed using a rubric that rated the level of thematic connections, the level of the simulation experience, the level of technology used, the level of higher order thinking stimulated for students, and the kinds of instructional grouping patterns incorporated into the unit. Each teaching team was asked to submit at least one student product using multimedia.

During the fall semester each participant was observed delivering a lesson using multimedia technology. Using an observation checklist, the investigator gathered information about classroom organizational patterns, the types of programs used, the purposes for which technology was employed, the amount of higher order thinking stimulated, and the degree to which the technology application related to on-going curriculum.

Results

Findings indicated significant, positive results on each of the dependent measures. Participants increased in both their perceptions and actual demonstrations of computer skills. Inservice as well as preservice teachers added new techniques to their instructional repertoires. Both teachers and elementary school students spent more time using computers. Preservice and inservice teachers became more aware of the need for programs that require higher order thinking strategies.

Self-Report of Computer Competencies. Results from the pre- and post-tests on computer competencies showed increases for all categories: Basic Skills, Word Processing, Database, and Spreadsheet. The differences in group means for all four areas were statistically significant, $p<0.001$.

Self-Efficacy for Using Computers to Teach Science and Mathematics. The MUTEBI (Enochs, et al., 1993) Personal Efficacy (PE) and Outcome Expectancy (OE) data were analyzed using a repeated measures ANOVA. The differences in the PE variable were statistically significant, $p < 0.001$. Both inservice and preservice teachers increased in confidence that they could use technology to teach science and mathematics. The differences in the (OE) variable were not statistically significant. There was no change in the participants' perceptions of the influence of their own technology training on their students' performance in science and mathematics.

Family Workshop Questionnaires. Parents' responses to both the Likert-type and open-ended items indicated that they valued the workshop. One-hundred percent of the twenty adult respondents agreed or strongly agreed that they and their children enjoyed the program. Seventy-five percent of the parents agreed or strongly agreed that they had learned a lot, and ninety-five percent agreed or strongly agreed that their children learned a lot. Eighty percent of the parents agreed or strongly agreed that the program helped them realize there are a variety of effective ways to teach mathematics and science. Written responses to open-ended questions indicated strong support for both the workshop format and the plan to further infuse technology into classroom instruction. Families appreciated being actively involved in the program and suggested that a better awareness of opportunities for relevant life experiences in the school setting was a benefit of the program.

Participants' Journals. Two generalizations surfaced from analysis of the journal entries written during the summer institutes. First, those who collaborated as teams expressed a much greater sense of accomplishment, many more "AHA!" moments, and a wider variety of experimentation than those who worked independently. Second, those who chose their themes before they left the June institute not only poured greater energy into their experimentation, but also spent their time in a more focused manner, for instance previewing applications and software programs, formatting newsletters, creating Hyperstudio stacks, experimenting with KidPix, and investigating theme-related CD-ROM and laserdisc resources. Those who had no particular thoughts about how they would use technology to enhance curriculum, spent more time on non-instructional applications, such as surfing the internet, sending e-mail messages to friends, and printing graphics unrelated to the school curriculum.

Three generalizations surfaced from the journal entries written during the school year. The greatest frustrations at the beginning of the school year arose in the area of time management as teachers sought ways to maximize the use of the multimedia equipment. Some chose whole-class instruction using information resources and simulations; others scheduled individual or team times. Those whose usage was the highest established an each-teach-another pattern; the teacher anchored a specific program with a few computer-literate students who then passed along the learning to their peers in ever-widening circles.

Second, students' use of multimedia beyond word processing was diverse, including adding graphics to their texts, "reading" interactive stories containing problem-solving elements, researching information for on-going thematic units, generating presentations, and working through simulations like *Oregon Trail.* During the first few months of the school year, however, most teachers chose to focus rather than experiment. A given teacher used one application many times before

incorporating others. Teachers and students alike seemed to build confidence best by focusing on one program/application at a time.

Third, teachers found that they needed to adjust their thinking about the role of technology. Previously most teachers had viewed the weekly period in the computer lab as a discrete time when students worked on keyboarding/computer skills or content-area drill and practice games—in isolation from the on-going curriculum. It was a challenge to readjust this pattern and link the technology experiences with on-going instruction.

Usage Logs. Preliminary review of the data from the usage logs indicated that both teachers and their students used technology most as a production tool. Teachers used computers primarily for instructional planning and for communication, e.g., newsletters and reports to parents. Students used technology for the production of stories, poems, reports, and slide shows, but also for games and simulation, information searches, and skills practice. The most common configurations for student use were pairs or small group work. Not only was there an increase in the amount of classroom use of technology with the availability of the multimedia carts, but comparison of the logs for Fall 1994 and Fall 1995 also showed increased use of the computer lab. Although simulations were emphasized during the staff development time in the lab, teachers used a variety of other programs as well.

Observations. Frequency counts on the 32 classroom observations conducted during implementation showed that the most common organizational patterns to be individual and small group work, the configurations used during 69% of the observations. A wide range of programs, 20 in all, were used across the 32 experiences representing four different uses for technology in the following order of frequency:

- technology as a source of science and social studies information on current topics of study (50%), using programs such as *Encarta, Buy Me, Sky High, Agents of Infection, Creepy Crawlers, The Real Heart, The Great Solar System Rescue,* and *Windows on Science*;
- technology as a production tool for preparing presentations or written stories on current topics of study (22%), using programs such as *Hypercard, Hyperstudio,* and *Storybook Weaver*;
- technology as a supplement to enhance the content of the discipline in general, but not related to topics of study (19%), using programs such as *Fizz and Martina, Reader Rabbit,* and *Grammar Gobblers*; and
- technology for isolated computer training without a context for the content area, e.g., learning how to format a disk (9%).

Interviews. All 10 of the inservice teachers interviewed increased on their Levels of Use ratings, which Loucks et al. (1975) label as follows: 0 = Non-use; I = Orientation to Innovation; II = Preparation for Use; III = Mechanical Use; IVA = Routine Use; IVB = Refinement of Use; V = Integration of Use with Efforts of Colleagues; VI = Renewal or Complete Change of Use. The average upward change was three levels, with the greatest differences for those who began at levels 0 and I. The most common comments within the interviews gave evidence of three key benefits of the project.

- Teachers felt more confident in their ability to use technology within the curriculum.
- Students were more motivated. Some students indicated to their teachers that the use of technology offered them their first opportunity to feel like experts in an academic setting.
- The support of colleagues on site kept the momentum for innovation alive.

Units and Student Products. Results of the rubric analyses of the 10 units developed for grades K-6 produced these generalizations in the six rated areas. Thematic connections were strong for primary teachers but less evident in intermediate-grade units. Most connections were teacher-made with limited opportunity for student discovery. Simulation experiences involved primarily manipulation of data to reach single solutions with limited stimulation of students' generative thinking. Given the parameters of the project it was expected that the focal subjects of the simulations would be in science and mathematics; however, frequencies of the subject areas targeted resulted in the following percentages of incidence: science, 60%; humanities/social studies, 20%; mathematics, 10%; and language arts, 10%. The two most common uses of technology were investigation of informational resources and generation of products using a variety of multimedia. Stimulation of higher order thinking was moderately high in language arts, moderate in science, and moderately low in mathematics. All units included a full range of classroom grouping patterns: full class, small groups/partners, and individual.

The sample student products submitted by participants (134 products from 14 classrooms) were analyzed using Patton's (1990) Searching for Patterns process and offered three generalizations. First, the teachers opted to share primarily word-processed writings and class slide presentations. Many of these products included imported graphics and were prepared for classroom displays and/or presentations to parents. Students and teachers alike appeared to take satisfaction in professional-looking results. Second, the higher order thinking skills required for the student work included personal expressions and

investigative reports. The former required primarily experimentation with effective word choices. The latter involved selecting appropriate sources of information, comparing sources for credibility, and synthesizing gleanings from multiple sources. Third, teachers chose to include early and later versions of products to show the power of efficient revising and editing using technology.

Discussion

Data from Project SIMULATE indicated that two weeks of initial instruction were sufficient to develop participants' confidence in specific computer skills and in the use of technology as a tool for information access and production within science, mathematics, and language arts instruction. Participants tended to perceive themselves as novices at computer use when they began the program. Through the summer institute workshops, they significantly increased their self-perceived levels of competency in computer skills, as evidenced by significant gains from pre- to post-test on the Self-Report of Computer Competencies. The scope of the summer institute extended beyond those basics, however, to address using technology for instructional purposes. By the end of the summer, participants also believed more strongly in their ability to use technology for science and mathematics instruction, as evidenced by increased scores on the Personal Efficacy subscale of the *Microcomputer Utilization in Teaching Efficacy Beliefs Instrument* (Enochs, et al., 1993). Scores on Outcome Efficacy did not increase significantly indicating that teachers did not change the level of their belief about the impact of their technology training on their students' performance. This was an unexpected results and the reason was not clear. A follow-up project currently in progress may reveal the source of this finding.

Analysis of participants' journal entries written between the June and August institute workshops provided insight into the process of technology integration. Participants highlighted two factors that intensified their level of engagement while searching for and experimenting with new multimedia software: (a) continued collaboration between two or more individuals during the implementation phase of the project, and (b) identification of specific science/mathematics topics to address with technology.

Analyses of the journal entries, classroom observations, teachers' thematic units, and student products gathered during the implementation phase, September 1995 through January 1996, indicated that teachers' initial efforts focused on time management, but, through systematic addition of one technology application at a time, both teacher and student confidence increased. Teachers appeared to alter their perception of the role of computer technology in education. Instead of seeing it as an isolated addition to the curriculum, they

became aware of its potential as a tool to enhance thematic instruction.

Three areas appear to warrant further attention. First, the use of simulations was not as extensive as anticipated; both pedagogical and technological awareness and skills may need to be reinforced to provide teachers both the conceptual understandings and the mechanical skills for effective implementation. Additionally, the search for quality teaching-based simulations must continue. Second, the potential for eliciting students' higher order thinking skills was not fully met. Staff development with focus on questioning techniques, genuine research tasks, and professional-level products might assist teachers to maximize the use of multimedia to reach higher expectations. Third, there was limited use of the rich possibilities for mathematical problem solving. Encouraging each teacher to consider designing at least one thematic unit per semester around a mathematical concept might awaken them to the value of this option. All three areas may merely require workshop time for building curriculum, as teachers did demonstrate the ability to use simulations, reach higher order thinking skills, and employ technology for mathematical problem solving. Like their students, they may simply need more experience to gain confidence. The challenge remains with the leadership to continue to provide the training and support to stimulate this growth.

The results of the collaborative efforts in Project SIMULATE are encouraging. As change agents, the participating inservice and preservice teachers have already begun to influence their peers, as well as the ultimate beneficiaries of improved instruction, K-6 children. The model developed for this project offers the educational community four valuable components: a linkage of pedagogy and technology; collaborative planning to create instructional units; techniques to maximize the use of resources; and a multimedia-based, inquiry approach to stimulate students' higher order thinking skills. If inservice teachers, preservice teachers, and university professors work together, we can provide instruction that will prepare today's elementary school students to meet the technological, economic, and personal challenges of the 21st Century.

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The Science Daze Partnership

Elizabeth Rhodes Offutt

For the past four years several different institutions have joined to form a unique and successful partnership in the Birmingham, Alabama, area. This partnership promotes the K-3 program, Science Daze, focused on helping teachers overcome their fear of teaching science, familiarizing teachers with resources available to them in the Birmingham science community, providing students in grades K-3 with stimulating science experiences, distributing 30 proven hands-on science lessons to science educators, providing relevant hands-on lessons to teachers, and working with a targeted university teacher training program to provide support to better prepare their teacher candidates to teach K-3 science.

All children must be prepared to solve the problems of our future, most of which have not existed before. Children must know how to use critical thinking skills and scientific processes in order to promote life-long learning and skills to solve the most current problems. Students in affluent schools have an enormous amount of resources that help them be prepared for future challenges while students in inner city, and some rural schools are severely lacking in resources. Inner city students have difficulty in obtaining enough materials and resources to even begin on an equal footing with economically advantaged students.

Another aspect of this problem involves the nature of the current traditional method of instruction in the schools targeted for the Science Daze project. This traditional method may not be serving those students who require a more meaningful and exciting curriculum to develop thinking and problem-solving skills.

Businesses, the community, a university, Discovery 2000, and a local school district have come together to form a partnership focusing on developing centers for promoting innovations in K-3 science education. Students, educators, and scientists were provided with the access and training necessary to interact and communicate directly with each other. Teachers and pre-service teachers were provided with engaging and hands-on science curricula. This training allowed teachers to provide instruction that enabled students to improve their critical thinking skills and ability to use scientific processes.

Many students, teachers, and pre-service teachers received direct benefits of this project. Each year of the project, the number of participants grew as new schools were added and as additional students fed into the systems.

As a result of the program, pre-service teachers are more prepared to enter the classrooms. They do not have to invent their teaching strategies and learn what to do from a textbook, and they have learned new and effective techniques by observing master teachers in action.

Major Components of the Program

The Science Daze Partnership had six objectives:

1. Help teachers overcome their fear of teaching science.
2. Familiarize teachers with resources available to them in the Birmingham science community.
3. Provide students in grades K-3 with stimulating science experiences.
4. Distribute 30 proven hands-on science lessons to key science educators nationwide.
5. Provide proven curriculum-relevant, hands-on lessons to teacher participants to improve their teaching ability.
6. Work with a targeted university teacher training program to provide requested support to better prepare their teacher candidates to teach K-3 science.

The project received $125,000 in grant funding from Howard Hughes Medical Institute starting in 1992.

Description and Role Of Partners

The partners in the project were the Birmingham Public Schools, the Samford University's Orlean Bullard Beeson School of Education, the Southern Research Institute, the Applied Science Task Force of the Education Division of the Birmingham Chamber of Commerce, and Discovery 2000. The Birmingham Public Schools student population is ninety-nine percent minority. Most of the schools participating in this program are located in economically disadvantaged areas throughout Birmingham.

Located within Metropolitan Birmingham area, the Orlean Bullard Beeson School of Education facilities provided a central meeting point for many of the services and training provided in this project. Pre-service teachers were trained under the tutelage of the Discovery Place staff members. Pre-service teachers were also required to teach inquiry lessons to students of the Birmingham city teachers trained in the program. Their lessons were critiqued by the teachers trained through the Science Daze program.

Scientists engaged in a variety of scientific and engineering research activities at the a private not-for-profit Southern Research Institute (SRI) participated in workshops for teachers that involved bringing them into laboratories so that they could be exposed to various

kinds of scientific activities in person, not only to ask questions, but to engage in some participatory activities as well. The goal of SRI was to increase the experience and comfort level of teachers in terms of presenting science to their students. They were also able to provide appropriate scientific and engineering resources to aid in the development of the various programs and materials that were disseminated to the teachers. Twenty-four scientists served as consultants and presenters over the four year program.

The Applied Science Task Force of the Education Division of the Birmingham Chamber of Commerce focuses on specific activities that benefit science education in the greater Birmingham area, and Discovery 2000, an organization representing a merger of Red Mountain Museum and Discovery Place, operates Red Mountain Museum located in the Red Mountain Roadcut, a National Natural Landmark that exposes over 160 million years of earth history. Discovery 2000 Outreach offers curriculum-based programs to individual K-8 classrooms.

Brief Design of Project

The plan was structured along a four-year timeline with similar activities and contact points in each of the years. The design focused on one grade level of K-3 during each year of the program (i.e. Year 1-3rd grade; Year 2-2nd grade; Year 3-1st grade; Year 4-Kindergarten). This program provided activities that were meaningful, relevant to daily life, and developmentally appropriate. Moreover, they were specifically designed to foster strong critical thinking and process skills required to effectively solve problems in both the classroom and the work place.

The initial group of teacher participants were 52 teachers, one from each of the third grade levels in the 52 Birmingham City Schools having grades K-3. They were identified and chosen by the system-wide elementary science coordinator and the principal of each school for their interest and aptitude for teaching science and for a willingness to commit to involvement in this proposed project.

The teachers' involvement focused on four two-day workshops during each academic year: 1992-1993, 1993-1994, 1994-1995, and 1995-1996. The workshops took place on one regular school day (either a Monday [Group A] or a Friday [Group B]) and a Saturday of the same week.

Teachers received release time by the School System on the regular teaching day and received a stipend ($50) for their personal time on Saturday. Two groups of 26 teachers each (Group A and Group B) were necessary to accommodate the space available at The Discovery Place, site of the weekday workshops. Saturday workshops were comprised of the combined groups and were held in the School of Education Building on the Samford University campus. Field trips by the teacher

participants were conducted on Saturdays, primarily to SRI with some trips to medical research laboratories at the University or Alabama at Birmingham. All of the sites involved were located within five miles of one another.

Sample Workshop Schedule

Weekday Session (Monday or Friday)

8:30 a.m.	Assemble at The Discovery Place—Teachers participate in hands-on experiments and activities.
9:30	More hands-on life science experiments suitable for third grade students.
10:30	Break
10:45	Continue experiments and demonstrations with discussion of experiments.
11:30	Depart for lunch at Samford University cafeteria.
1:00 p.m.	Teachers practice experiments and assemble materials into kits for use in their classroom lessons used to conform to the State Curriculum Guide.
3:00	Review of science session.
3:15	Workshop Evaluation
3:30	Adjourn

Saturday Workshop Schedule

8:30 a.m.	Convene in Classroom of Orlean Bullard Beeson School of Education, Samford University
8:45	Introduction of Southern Institute scientists who will discuss the applicability of science principles to their research.
9:00	Presentations by four scientists
10:00	Break, with opportunity to mingle and mix with scientists
10:30	Depart for Southern Research Institute and visit laboratories.
12:30 p.m.	Depart for Samford University cafeteria for lunch
1:45	Questions and answers & discussion of days' experiences
2:15	Integration of weekday session and Saturday session with curriculum content of State Course of Study in Science.
3:15	Evaluation
3:30	Adjourn

The four workshops focused on the three content areas in science outlined in the Alabama Course of Study in Elementary Science and a special session dedicated to effective methods of teaching hands-on science experiments, science laboratory safety, and classroom management. The three science content areas in the state curriculum are life, physical, and earth science. All sessions and experiments were designed to be curriculum relevant and practical for teachers. The workshops emphasized hands-on science, science safety, classroom management, and the inquiry method of teaching. Each teacher trained in the program conducted at least one structured in-service session, supervised by Discovery 2000 for their fellow teachers on teaching science to elementary students.

This overall format was repeated in each year of the four year long project. Nearly 25% of all elementary teachers in grades K-3 have had direct participation in this program. Every Birmingham city school should have had four teachers, K-3 who have been trained and exposed to the resources available in the program. As of June 1996, 208 teachers have gone through this program.

Resources

As a result of their involvement in the workshop sessions, teachers have worked through experiments and activities in a take-home notebook that included a comprehensive set of 35 lesson plans. One concern often voiced by teachers is that they do not have the raw materials or the access to the equipment or resources to do demonstrations or to allow students to conduct even simple experiments. While participating in the Science Daze program, teachers put together simple and inexpensive resource kits needed to teach the lessons.

Throughout the four workshops, each Science Daze teacher prepared a science resource kit that was used as a basic resource necessary to conduct experiments and demonstrations in the three science curriculum areas: Life, Physical, and Earth science. These kits contained materials needed to teach hands-on science lessons in the Science Daze program. All experiments and accompanying content conformed to the state curriculum in elementary science guidelines.

All teachers participated in hands-on sessions where they had the opportunity to learn, practice, and master the activities described and contained in lesson plans and science resource kits. These kits were placed at the appropriate grade level in all 52 elementary schools under the supervision of the resource teacher in science for that grade. At the end of the four years of this project, Science Daze kits were at every grade level K-3 in all of the 52 elementary schools in the Birmingham Public School system, a total of 208 kits.

Summary

This project provided assistance and resources to many students, teachers and pre-service teachers through the utilization of strengths of various programs, personnel and resources of the universities, schools, and businesses. The specific areas identified by the project enhanced the educational experiences of the participants through hands-on science instruction. All participants had opportunities to strengthen their cooperative and collaborative skills. In addition, the faculty development and teachers-in-training component of the program provided participants with further opportunities for interactive and scientific learning.

During the first four years of the project, 5,000 students, 208 teachers, and 1,300 teachers-in-training benefited from this project. There will be tremendous potential for expansion of the program for students in grades K-College, teachers, pre-service teachers, and members of the science community throughout Birmingham. In the fifth and final year of the grant, the curriculum developed and used in the Science Daze will become available for other schools and universities to use for similar programs and projects.

Praxis—Translating Theory into Practice in a School-Based Teacher Education Program

Carol Fuhler and Malathi Sandhu

The Praxis school-based partnership is a teacher preparation program that is a cooperative effort of the Center for Excellence in Education at Northern Arizona University and two Flagstaff Unified School District schools—an elementary school and an adjacent middle school. Prior to student teaching undergraduate dual majors (Elementary and Special Education), as a cohort, spend three semesters observing, assisting, and teaching in classroom settings while being mentored by partner teachers and supervised and taught by university professors. Most teacher preparation courses are delivered by University faculty at the school site. This paper identifies the benefits and challenges for all participants in this innovative university-school partnership program.

Northern Arizona University's *Praxis Program*, offered at a local Flagstaff public elementary school, is designed for elementary education majors who also want a special education endorsement. Students take three semesters of fieldwork in elementary and middle school classrooms under the supervision of elementary/middle school teachers and university faculty before they do their student teaching. The Program began in the fall semester of 1994 and graduated its first group of students in the Spring of 1995. A second group was admitted in the Fall of 1995 who did their student teaching in Spring semester 1997. By the end of the current cycle, a total of 44 dual majors will have completed this program.

Courses offered in the program include a combination of elementary education and special education courses that all dual major students at Northern Arizona University (NAU) have to take. Additional requirements include participation in elementary and middle school classrooms and professional development seminars each semester. Students typically take 16 to 17 credit hours of coursework each semester.

Program Philosophy

In discussing existing school restructuring proposals, Whitaker and Moses (1994) advocate establishing school-university partnerships for some of the following reasons:

> If universities hope to be players in the restructuring of education, they must work directly with schools and school districts. In addition, universities must examine their own teacher and administrator preparation programs to determine whether they provide prospective teachers and administrators with the resources they need to work successfully in restructured schools. Universities can be of enormous help, especially if their personnel and programs model the kinds of changes that should occur in schools. (p. 100)

At the heart of the Praxis Program is the interplay of theory and practice. The term Praxis itself refers to the process of reflecting on practice as one way of developing the skills, knowledge base, and dispositions of the effective novice teacher. It is also anchored in the process of reflecting on theory as a check on practice. Thus, practice helps to construct and refine one's knowledge of educational theory and, in turn, theory helps to shape and refine one's practice.

The Holmes Group (1990), in describing powerful learning experiences in a learning community state that these require "action and participation and reasoned discourse" (p. 19). NAU education faculty recognize the value of using the rich environment of a public school as the training ground for future teachers and for their own professional development. New developments can be experienced by university students and faculty alike, and their presence can provide support and endorsement for innovations such as full inclusion classrooms, multiage classrooms, technology education, and diversity initiatives. Thus the NAU Praxis Program aims at true partnership between school and university for the mutual benefit of both entities.

Program Participants

Program participants include NAU students, NAU faculty, and elementary and middle school teachers. Students who have completed most of their liberal studies requirements may apply for admission into the Teacher Education Program at NAU. Once admitted they may opt to pursue a campus-based program or one of several school-based programs. Each of the school-based programs, including Praxis, requires another formal application process. Praxis applicants also submit a written essay on an education-related topic. Approximately 25 students are admitted during each program cycle into the Praxis Program. These students enter the program as a cohort group and move together through the three-semester cycle.

University faculty in both elementary education and special education deliver courses on the school site on a daily basis. Typically, three or four NAU education faculty members are involved in this process each semester. The school principal, an NAU graduate and part-

time instructor for NAU, also teaches one university course per semester. Faculty members selected to teach in the Praxis Program are those who have expressed an interest in being affiliated with this university-school partnership, and they know that time demands and challenges experienced in the day-to-day operation of the program far exceed those one might experience in the campus-based traditional program. Special attention is given by area chairs in assigning faculty members to this program since a prerequisite skill is the ability to work well as a member of a large program team.

One university faculty member serves as a coordinator for the program. This individual is responsible for scheduling and staffing activities, articulating program needs at the university and school site in behalf of all program participants, and generally, problem solving on varied fronts.

A graduate assistant, typically a doctoral student in education, is assigned to the Praxis Program, for a total of 20 hours per week. This individual provides support and assistance by performing a wide range of tasks at the school site. At present, the assigned graduate assistant is also completing her doctoral dissertation study, which has a specific focus on the cultures that operate in a school-based program and on cultures that emerge as the program evolves.

Elementary and middle school teachers self-select into the program if they wish to serve as partner teachers for the university students. First year teachers are not encouraged to serve as partner teachers, since they are likely to face many challenges as they settle into teaching. Those who opt to join the program are provided with a document titled "Expectations of a Partner Teacher," which was drawn up by Praxis university faculty and a core group of elementary teachers. This document is reviewed and signed by each partner teacher and kept on file for future reference. Prior to the beginning of each program cycle, school faculty are provided with an orientation to the program and updated on changes that may have occurred. School faculty members who are mentors to university students are asked to provide feedback and voice relevant concerns to the students placed in their classrooms, to the principal, and to university faculty. To date, all but three of the elementary school faculty have served as mentors to university students, and some middle school faculty have functioned in this capacity as well. This involvement has provided the NAU students with a broad range of valuable classroom experiences. Each partner teacher is provided with a small stipend or NAU tuition waiver each semester for participating in the program.

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Program Strengths

As the program name suggests, university students, early in their teacher education training process, experience the translation of education theory into practice. They are immersed in the school environment and observe firsthand children's schooling experiences and typical demanding school routines. They become aware of the full scope of teacher roles and responsibilities. For example, these teachers-in-training have the opportunity to interact with children and teachers and to plan and teach a variety of lessons. As a result, they develop a teaching presence and are comfortable in the classroom environment long before their student teaching semester.

Mager (1992) discusses the importance of programs that assist in the induction of pre-service teachers into the teaching profession and that help them make the critical transition from preparation to practice. In referring to what builds teacher effectiveness, Mager also cites the significance of the new teacher performing well in "out-of-classroom tasks such as becoming part of the faculty, working with parents, and understanding and working with the culture of the school and the community" (Mager, 1994, pp. 17-18). In the Praxis Program, university students are provided with many opportunities to develop a working knowledge of the school culture. They also become knowledgeable and experience the entire scope of teacher roles and responsibilities.

Each university student typically has five different grade level placements through the course of the program, and works with as many different teachers in the process. After an initial period of observation in the classroom, students move into the role of assisting the partner teacher and eventually into planning and teaching lessons to individuals, small groups, and the whole class of young students. University students are exposed firsthand to the dynamics of resource room, self-contained, and full inclusion classrooms that incorporate such features as multiage classrooms, integrated curriculum approaches, and other curriculum and program innovations.

There are benefits to the partner teachers and their students in this field-based setting. With a Praxis student in the classroom, teachers can spend more quality time with children through individualized tutoring and small group instruction. The ongoing dialogue between the Praxis student and the partner teacher is a time to share new ideas and materials that can enliven the curriculum. Also, the partner teacher has an opportunity to share personal insights and expertise gained from day-to-day experience in the classroom. As university student and classroom teacher team together, both can update current knowledge and instructional skills. The veteran classroom teacher has a say in how new teachers are inducted into the profession. This answers "two criticisms commonly leveled against the university are that the faculty who teach

teachers are too far removed from the realities of schooling to provide knowledge that is usable" (The Holmes Group, 1990, p. 50). Goodlad and Sirotnik (1998) suggest that the action-oriented culture of the school and the reflection-oriented culture of the university would mutually benefit from the interpenetration of the two institutions in partnership arrangement.

Stupiansky and Wolfe (1992), describing project outcomes of a mentor/intern project involving beginning teachers, veteran teachers, and university teacher education faculty, point out the value of this form of induction for beginning teachers in that these programs enhance and energize the mentor teacher, permitting these individuals to reflect on teaching.

University faculty involvement in the Praxis Program enriches the faculty member's experiential base so as to render the faculty member more effective when teaching university courses. In addition, work with pre-service teachers in the school setting has the value of providing opportunities for "professional service" for university faculty. University-school partnerships also provide the professor with a rich source of material for research and scholarly publications.

School-university partnerships such as the Praxis Program facilitate more collegiality in teacher preparation programs. Additional endorsement of these collegial relationships comes from the fact that the public school principal at the school site typically teaches one course per semester for the university students. Summing up, it is quite apparent that this school partnership provides university faculty, students, and school faculty with opportunities for growth, reflection, and a sharing of expertise.

Program Issues and Challenges

University student related issues. First, this particular teacher education option, like the other school-based partnership programs offered by NAU, requires a large commitment of time on the part of students. Unlike the other school-based program options, however, which involve two semesters of work, Praxis involves three semesters. In addition, students work in the classroom during morning hours and attend university classes in the afternoon (with the exception of Friday afternoons when they have no program participation requirements to fulfill). This implies that, typically, a Praxis student carrying 16 to 17 units per semester, will have little or no time for part-time work. This not only imposes a financial hardship on some students and their families, but also restricts access to the program for students who find outside employment a necessity. For the small number of students who have to work while completing the program, the stress in their lives is intense, as they must continually juggle school and work responsibilities.

Second, a unique feature of all the teacher education programs at NAU that offer a cohort structure is the fact that, over time, students emotionally bond with each other and provide the support and nurturing relationships for each other that facilitate their successful completion of the program. While this is a positive and desired outcome of the process, the other side of this same coin is the cohesive front presented to faculty that sometimes represents resistance to course requirements and general challenging of the faculty member's authority. Another development that has been observed in both Praxis cohorts has been that as students get to know each other better, conflicts and rivalries are often sparked and played out.

Third, students have been "groomed" by partner teachers who then hoped, or initially were lead to believe that these individuals would student teach with them. In the first Praxis cycle, no students elected to be placed in student teaching assignments with their partner teachers. For the students, it was a very pragmatic reason that led to this decision—they had been advised to student teach in districts that were more likely to hire them. Flagstaff Unified School District has had few openings for new teachers over the past several years. For some partner teachers, this was a disappointment of severe proportions, causing a few of them to reconsider their decision to participate in the program.

University faculty related issues. First, the heavier workload associated with commitment to student supervision in the program has been quite burdensome to some faculty members. Maintaining campus-based service responsibilities (e.g., committee work) and keeping up with scholarship activities (e.g., publications and conference presentations) has proven to be stressful. While some university faculty have simply taught individual courses in the program, typically, both the NAU elementary education and special education areas have committed faculty time for the purpose of supervising student involvement in the elementary/middle school classroom. The tree hours of release time for each faculty member involved does not reflect the volume and diversity of responsibilities the Praxis Program actually entails.

Second, faculty who work in the Praxis Program need to be team builders and team players, rather than those invested in furthering individual professional goals. The Praxis Program is coordinated through the efforts of a team of individuals comprised of university faculty, the school principal, and partner teachers. This team works together to build student schedules, offer university courses, and supervise and mentor university students in the program. They often have to work in smaller or larger (group-as-a-whole) units to accomplish specific tasks. A variety of skills is demanded for these purposes—cooperation, collaboration, negotiation, compromise and creative problem solving, to name only a few.

Third, in order to function as a team, Praxis faculty feel that they need to share a common vision for the program and have a similar philosophy of teaching, to forestall conflict and disagreement. This, again, necessitates careful choice of faculty assigned to the program and a continuous articulation of program goals among faculty once they are assigned. Regular and frequent meetings and other informal means of communicating among faculty members are also necessary so that consensus decision-making and problem-solving efforts can occur. This, however, places demands on faculty time, as has already been noted above, and can be quite burdensome for an already overtaxed faculty member.

Fourth, team building, trust, and open communication between and among Praxis faculty, school faculty, and students, can only be satisfactorily achieved if there is reasonable stability and continuity of personnel over time. Students have expressed resentment when university faculty are moved in and out of the program. School faculty and administrators, while more reticent about expressing disapproval of frequent changes in university personnel, undoubtedly have to adjust to these changes. As a result, they may have been slow to confide problems and concerns with new faculty, sometimes exacerbating problem situations.

Finally, Praxis faculty also need to have a high degree of tolerance for informal, non-traditional professor-student relationships as opposed to the more traditional and formal ones with which they are familiar. In this program, university students need mentoring and emotionally supportive relationships when they face the stresses and challenges of teaching in new placements and when they have to problem-solve classroom and child behavior management problems. Also, students who are taught by the same instructors for three consecutive semesters, develop a sense of comfort and familiarity with them, that may cause some of them to seek more informal contacts and forms of communication with faculty members. Some university faculty have expressed the fact that they find this reduced "psychological and role distance" between student and faculty member to be uncomfortable.

School site related issues. First, some partner teachers, even though they have agreed to participate in the Praxis Program, still experience "territorial issues" in handing over teaching assignments and their classroom itself to university students. Sometimes conflicts arise between university students and partner teachers when teaching philosophies conflict. More extensive teacher in-service activities may be part of the solution, but teachers have not necessarily availed themselves of these opportunities when they have been provided.

Second, in its third year of operation, partner teachers at the elementary school site have voluntarily organized a teacher committee to facilitate the Praxis Program. The committee consists of a smaller

number of teachers than the school faculty as a whole. There was obviously a felt need for this kind of teacher involvement, but it could not be required and promoted by university faculty in the program. How the committee will operate, what issues they deal with, and how the committee will articulate with university faculty are issues yet to be determined. So far, the committee has been instrumental in refining the Expectations of Partner Teachers document. It has also served as a conduit for disseminating information about the program to the rest of the school faculty.

Third, a sensitive issue for university faculty is one pertaining to how to deal with a partner teacher who does not always model best practice for university students in the classroom. Typically, when this has occurred, the university faculty coordinator has broached the issue with the school principal, who has then dealt with the problem or concern. It is possible that the recently formed teacher committee can also be delegated the responsibility for dealing with such issues.

Finally, another relevant issue that partner teachers face is how to add more tasks and responsibilities, such as mentoring university students, to an already busy and crowded daily schedule.

Other program related issues. First, resources, such as funds and release time for participating faculty, are important in ensuring the success and continuation of a program such as Praxis. No start-up funds were allocated for this program, although there was some faculty release time for the planning and implementation of the program and a 20 hour per week graduate assistant was provided. This issue of resources continues to be a concern for the university faculty and particularly for the faculty coordinator of the program. There is also no budget for ongoing program expenses. Faculty can compete for internal (university) grant funds or submit applications for external funding, but again, demands on their time being what they are, applying for grant funds to support an ongoing program becomes one more responsibility in a complex cluster of responsibilities that they already handle in Praxis.

Second, in order to determine the efficacy of a program such as this one, systematic, ongoing review of all aspects of the program need to be undertaken. There has been only one informal assessment of the Praxis Program. Informal feedback from program participants has been used to change the sequence of course offerings, to effect placements for students, to change university faculty assignments, to redefine student policies, and so forth. Formal assessment is needed to determine the future directions the program may take or the very future of the program itself.

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The Praxis Partnership: Reflections on a Field-Based Program

Carol J. Fuhler and Linda K. Carey

Praxis is a term that refers to the process of combining theory and practice, using one to inform or substantiate the other in a continually evolving process. Inherent in this process is reflection on practice as one way of developing the skills, knowledge base, and dispositions of a well-prepared beginning teacher. Praxis students in one of Northern Arizona University's field-based program are learning that reflection is key to their personal growth and growth as future educators. It is apparent from our experiences during the last three years that a true field-based partnership is comprised of a community of life-long learners whose daily reflections catch them up in a continuous evolutionary process of change and growth.

The elementary school's halls are dimly lighted and quiet at seven o'clock in the morning. The custodian is making her rounds, unlocking classroom doors and efficiently setting in motion the process of getting the school up and running before the first energetic children arrive. Several teachers, self-proclaimed morning people, are already in their classrooms fine-tuning plans for the upcoming day's activities. The principal is prioritizing duties, checking appointments, and making a quick phone call. He will soon be ready to affectionately greet students arriving for breakfast, and later, others who begin their day at a more routine time.

As the minutes tick toward 8:00, other teachers filter in with a bevy of eager college students right on their heels. Wait! Eager college students? Do they belong in this picture? The answer is absolutely, for they are part of the three-year-old Praxis Partnership, an integral part of this elementary school setting. A blend of teachers and learners and teachers-as-learners make this particular school an especially exciting place to work.

Yet, it has been a bumpy road on the three year journey toward stability in this field-based program. As the partnership begins its fourth year, we surely understand what it feels like to be "struggling to invent collaborative relationships where none existed before" (Darling-Hammond, Bullmaster, & Cobb, 1995, p. 89). Could it have been easier? Are there practical suggestions to share with others who are considering field-based programs? We think so. The remainder of this paper will highlight the challenges and accomplishments of a field-

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based partnership intent upon redesigning teacher education within the heart of a thriving elementary school environment.

A Little History

Praxis is a term that refers to the process of combining theory and practice, using one to inform or substantiate the other in a continually evolving process. Inherent in this process is reflection on practice as one way of developing the skills, knowledge base, and dispositions of a well-prepared beginning teacher. Reflection continues as theory is examined and used as a tool to shape and refine practice (Fuhler & Sandhu, this publication). The term and its accompanying concept were applied to a dream held by the principal of the elementary school, a friend who was also a professor at Northern Arizona University, and a pair of far-sighted teachers in the school.

Amidst planning and discussing, the plan evolved on paper and was supported by the Center For Excellence in Education at Northern Arizona University. As a result, a new field-based, dual-major program with a personality all its own was born nearly four years ago. This particular partnership is the university's only Flagstaff-based program with the focus on dual certification in both special education and elementary education.

When they begin Praxis, university students previously admitted into the elementary education program have completed most of their liberal arts requirements. Over the course of three semesters plus a semester of student teaching, these prospective teachers gather skills that will prepare them for teaching in the multicultural, technology-based schools of tomorrow. Approximately twelve hours of observing and real teaching time each week are essential pieces of the program. Supervision of work done by college students in classrooms is undertaken by partner teachers and NAU faculty. In Praxis, the classroom teachers, normally called cooperating teachers, are referred to as partner teachers while the NAU students are called Praxis teachers in their elementary classroom assignments.

The classroom experiences are supported by university course work taught on site in the Praxis classroom nestled among other elementary classrooms. Instructors are from both the special education and the elementary education departments. The combination of theory and practice moves the world of teaching and its inherent obligations beyond textbook descriptions, making it real to Praxis learners. The university students experience five different classroom placements including one in a special education classroom during the program. Such exposure provides a broad base of practical teaching experiences for each student.

While the current third cohort is all young women, we have had outstanding male students in the first two cohorts. Ages have varied

from the early twenties to late forties and include single students, single parents, and several married with children. Such variety in age and experience adds a healthy perspective on life in and out of the classroom for Praxis participants.

First Year Obstacles

While the program is currently flourishing as the newest cohort of twenty-nine Praxis III students begins its second semester, occurrences during the first year portended a future that was not optimistic. Using the invaluable perspective afforded by hindsight, it is apparent that several crucial ingredients were missing during the first cohort's existence. First, the initial planning phase was not inclusive enough to provide program stability. Time spent reading about field-based programs with interested faculty, training in mentoring, and attending a refresher course in conflict management would have been so advantageous. During this past year the focus was beginning to shift more to collaborative planning, teaching, and decision-making within and across the university and elementary school settings, a major step in the right direction (Darling-Hammond et al., 1995).

Communication in field-based programs is absolutely essential. Talking with teachers to see what they envisioned and general team-building between the NAU faculty and elementary teachers would have provided a more sturdy foundation upon which to secure this viable dream. If a true partnership between public schools and universities is to form, it continues to be true that conversation, planning, and education about the realities of field-based education should include the elementary school faculty. After all, it is their classrooms that become homes to a series of diligent Praxis teachers. Just what were the expectations for those teachers and for the NAU students once they were placed in a classroom? Somehow that essential piece was missing initially. In actuality, we found ourselves planning as we went, not an admirable position to be in. All was not bleak, however. Since that first year, efforts have been made to discuss a vision, a basic handbook for Praxis teachers was created, a letter of expectations for partner teachers was instituted, and wonderful friendships have blossomed among Praxis students and between the NAU team and the public school staff.

Changes continued. Concerted attempts to improve the quality and continuity of education in each of the college courses were successfully made. Conversations among NAU faculty and between that faculty and a core of concerned elementary teachers were held. Course content was reviewed to alleviate overloading students or to have them doing the same type of assignment in several classes. While team members did not share equally in observing students in their classroom placements in the past, those who did so gave valuable feedback on lessons taught and on behavior management techniques. Thus, from the inaugural year

onward, progress was quietly occurring amidst what felt at times like periodic chaos.

Because we seemed to be learning as we went, the pressures mounted the first two years. With no previous procedures set forth, policy was made as situations developed. It felt like we were faced with spot forest fires at times and all we were doing was stamping out the sparks. For instance, there were no contingencies for coping with the inferno of stress from a small but vocal group of students who felt the program should be run their way. Another problem occurred with partner teachers who understood that participating in the program meant they were eventually assured of having a well-trained student teacher. That did not happen because the majority of the first cohort opted to student teach elsewhere for very practical reasons. They recognized the need to try their wings as teachers in another setting before their first year as "real teachers."

Based upon living through such situations, a must-do for those contemplating a collaboration between the university and a public school is a year's worth of thorough planning, continuous communication, and constant teamwork. Build a joint vision, develop expectations for university students' performances in the classroom and for partner teachers as they supervise the university students, and polish mentoring skills. These efforts are absolutely imperative before classroom doors open with confidence on a new field-based education program.

Go For Team Leadership

In reflecting on the issue of team-building within the university faculty working in field-based settings, our fervent recommendation would be careful screening of interested faculty as a first step (Fuhler & Sandhu, this publication). There must be a reasonably close match in teaching philosophies, visions for the program, commitment to sharing long hours to make the program work initially and to grow later, similar work ethics, a genuine enjoyment of students from kindergarten through college level, and an ability to build rapport with teachers whose domain will change noticeably with the advent of the program. It is also critical that these faculty members share the load equally whether it is teaching, supervising students in classroom placements, or taking a turn at extra duties. High on the priority list is the ability to maintain a sense of humor all at the same time. Divergent philosophies, self-focus, and/or strong personal agendas simply have no place within the close confines of a field-based program if success is the goal.

Another point to consider is program leadership. While a dynamic leader can manage this educational setting, it is so much richer when it is run by a team whose ideas spark off each other and whose energies and quick humor buoy each other up. You can count on the fact that some days may still be slightly insane, but then nothing has to be faced

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alone. We ruefully admit that we have often walked down the hall to our Praxis classroom feeling like the day ahead was well-planned for, and thus under control, only to have those perceptions rapidly rearranged within a few short minutes of walking into the room.

Knotty Problems

In speaking with other colleagues who live in a field-based setting, a common problem requiring phenomenal tact is selecting classrooms for student practicum placements. Field-based on-the-job-practical train-ing necessitates a quality classroom environment. In our program, NAU students spend at least three hours a day, four days a week in classrooms working individually, in small groups, or in teaching the whole class a lesson. From their partner teachers they learn various ways to motivate, discipline, and reward learners. In general they learn to teach and love children from many cultures with a range of abilities and varying attitudes toward learning. Here, too, is an opportunity for the novice to benefit from sharing the personal theories and practices of an experienced teacher and then comparing them with his or her budding theories about best classroom practice (Coles & Knowles, 1995).

If care in making placements is not taken beforehand, issues arise when a partner teacher and a Praxis student do not get along. What about a teaching philosophy or practice that differs radically from what is supported by college programs? What happens if a partner teacher lacks the ability to mentor the younger Praxis teachers but wants them anyway? There are no easy solutions to some of these situations. They are real, they are touchy, and they keep all of us on our professional toes. The challenge is to set guidelines for selecting classrooms for student placements and to figure out how to tactfully avoid placing students in classrooms that do not fit those guidelines without nega-tively impacting the school environment. Perhaps lively professional development workshops including NAU staff, university students, and the elementary faculty would alleviate possible difficulties before they arose.

Student Stress—Teacher Stress

Time has shown us that a field-based dual major program is highly demanding of the students' time and energy. Different from a typical on-campus schedule, these particular students are on site from 8:00 until at least 3:30 three days a week, or until 6:30 on Wednesdays the two semesters when the school's principal teaches a late afternoon class. In addition, two Friday mornings each month are set aside as "Optimal Fridays" when a special speaker comes in. In looking back over the previous two cohorts, about half of the students had to work part time, and several were parents with demanding schedules outside of the

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classroom. Time or the lack of enough time was a major cause for stress in this program.

As the weeks pass, students tire because of lack of sleep or because they become ill as they are surrounded by children all day. The instability of that first year of the program and an especially demanding second semester for the first two cohorts resulted in a general mood that was short-tempered and very critical at times. Maybe a comfort level with complaining when things are not going right is inherent in any cohort situation, but it became a reality in Praxis. Then, a small number of the original students lost confidence and needed continued reassurance because they wanted to quit. Others became so confident that they would have preferred to run the program themselves. Periodically, stress from various sources become so palpable, you could almost touch it.

One option to decrease the levels of stress for the present and future cohorts would be to bring in a speaker to discuss change and how it makes us all feel. Learning some tips to deal with the stress that comes with change and then being encouraged to practice those coping strategies might be a survival strategy. Another lesson to be learned here is to take time to talk in order to diffuse potential problems as a group. We have instigated Monday meetings, over sack lunches, to disseminate important information, and to talk over problems and concerns. We have learned that sometimes we need to be gone in order to let the students have their time to vent.

Another tactic is to take some time out to play. It might be well worth the time to just cancel classes one day in the week ahead and go for a hike and a picnic. Everyone profits from a pleasant surprise. This is a sensible way to recharge batteries and provide a bit of an oasis in the midst of a demanding schedule. The current cohort has suggested a monthly potluck on Wednesdays when their day is extended by a late afternoon course. It is not giving in to the "warm fuzzies" to take time to listen, to take time to play together, and to get back to a firm foundation. Finally, courses were rearranged before the start of the current cohort to relieve the heavier load that fell second semester. Together we continue to listen, learn, refine, and move forward.

Voices from the Participants

The partner teachers in the Praxis program attest that working with teachers-in-training has helped their own professional development. Reflecting upon the competencies needed by teachers-to-be and upon their own observation of and discussion with university students, provides busy experienced teachers with a rare opportunity to be reflective practitioners themselves (Darling-Hammond et al., 1995; Hargreaves, 1994). One teacher commented, "It has been wonderful to have the extra individual attention for the children." Another reflected,

"I've really enjoyed the help, examples of the students, and their enthusiasm! I see lots of growth in the students and they help me stay excited!" Finally, "The program has really improved since it started." That is music to our ears.

The voices of the college students are listened to with care as they have reflected over their experiences in the Praxis Partnership. A student from the first cohort remarked,

> If I had to make the choice over again and had to choose between the traditional road of education and the sometimes rocky road of the Praxis Program I would choose Praxis. I feel as though I have walked through fire and am on the verge of emerging on the other side of a stronger version of my former self. I have learned more about myself through the difficulties of everyday life under a microscope than I would have ever imagined possible. Like Leo the Late Bloomer [Kraus, 1971], I have grown in my own time. . . . There was a time when I believed I could save the world, and then I thought the world was beyond saving. Now I believe again that I want to save the whole world . . . one kid at a time.

A representative reflection from the second cohort of students is from a young lady who was just hired as a kindergarten teacher,

> As I reflect over the events in my educational career during the last academic year, I find that the months have been filled with incredible growth which would not have been possible in any other program. Praxis has given me the valuable experience of being in a REAL school with REAL students having REAL successes and REAL problems. I have experienced the ups and downs faced every day by teachers as they try to encourage, nurture, and reach the children in their classrooms. It has often been said that experience is the best teacher!

The newest cohort of students begins their second semester, Fall 1997. After the initial semester, one learner remarked,

> One of the most important things I have gained through Praxis is what I learn both as a student in the Praxis classroom, and as a teacher in the elementary classroom. I believe that the only way to truly learn something is to have it proven to you, so you can see for yourself. You can read countless books about how to be a good teacher and about what works in the ideal classroom. Praxis provides for us the opportunity to do both. We learn different teaching strategies in Praxis, and then are

> able to test them and see if they really work in the elementary classroom. I've found that there is really no right or wrong in teaching . . . Sometimes for reasons unknown, different things work for some people when they don't work for others . . . It's important to realize this, and it teaches us to be flexible.

Another current aspiring teacher reflected,

> Being in the Praxis program, I have learned so much from the experience we get by practicing, from my professors, partner teachers, Praxis friends, but most of all from the students. I would say that I learn more from the students because there is a child within me. If there was not a child within a teacher, we could never help, understand, and care for any of them; therefore, we wouldn't be able to teach.

Reflection: The Impetus for Change

Reflection on practice is at the heart of the Praxis Partnership. It is through reflection by the NAU faculty and the elementary school principal that the program has evolved and improved over its three year existence. Partner teachers must reflect daily as they help to guide the Praxis teachers through successes and failures in the classroom. Finally, the Praxis students themselves are learning that reflection is key to their personal growth and growth as future educators. It is apparent from our experiences during the last three years that a true field-based partnership is comprised of a community of life-long learners whose daily reflections catch them up in a continuous evolutionary process of change and growth. Isn't that what teaching is all about?

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Bridging World Views: Professional Development for Faculty in a Site-Based Teacher Education Partnership

Sherry Markel

This paper illustrates some of the complexities of the university-school partnership experience. Professional development for the author is described as she increased her awareness of the cultures of the elementary school, the partnership, and the university. The polarity of university and elementary world views are explored.

Frequently professional development is identified and studied with sample populations of pre-service or in-service teachers involved with site-based, teacher education partnerships. Less often examined are the impacts of this experience on the reflection and practice of the university faculty involved in these partnerships. Sometimes, they mouth the words that learning is a two-way street but fail to acknowledge or benefit from the reciprocal learning opportunities rife in a partnership setting. This paper describes some of the complexities of the partnership experience. Professional development for this university faculty member can be measured by the increasing awareness of the cultures of the elementary school, partnership, and university. In order to do this, the bridges and conditions of the partnership context and the polarity of university and elementary world views are explored.

Setting

The partnership site is located in a small city in the western United States. The elementary school that hosts this partnership has over 700 students in grades pre-school through 6th. The socioeconomic demographics of the student population is a working class, ethnically diverse neighborhood. A classroom in half of a portable building is supplied by the school district for the partnership use. The partnership was established over a decade ago and has been housed at this site for over seven years. There is minimal faculty turnover with the teachers at this school so many of the mentor teachers have worked with the program for a number of years. There is a history and tradition here. Teacher concerns centered on providing quality learning experiences and opportunities for their students. A new principal began at the school last year. He had been a teacher at this school for quite a few years while the partnership was there and was very familiar with the routines and goals of the program.

University Students and Faculty/Staff

The typical partnership student is a white, middle class female whose age tends to be around 20 to 21. Every student is in their junior year when they begin this two semester program. Often, one or two non-traditional, older or post-baccalaureate students enroll in the program. The number of males varies by cohort from as few as one male to 24 females to five males to 20 females. New cohorts are accepted every spring semester with a literacy block of courses taught the first semester and content methods (including science, math, and social studies) taught the second semester. Students form car pools to travel to and from the school. The elementary school is about ten miles from the university and finding a parking place is often problematic.

Students self reported that they chose the partnership program for one of three reasons: 1) they valued the apprenticeship format of the program and learning to teach in real classrooms; 2) the program's reputation, they had heard that it was a good one; 3) friends either had enrolled in the program earlier or were enrolling with them. Students have all been very clear about the greater demands on their time and work load in choosing this program.

There is one university professor assigned to this partnership site. Her responsibilities include curriculum design and delivery, student advising, observations of student practice, liaison with teachers and staff at the school, and providing occasional professional development inservicing to school teachers. A staff position (an "instructional specialist") assists and shoulders many of the site responsibilities in tandem with the faculty member. These include lectures and instruction to university students as well as classroom observations of university apprentice teaching. A graduate assistant (GA) helps with clerical work, and because GAs are often experienced teachers, they share their expertise with university students in special lecture presentations.

World View

Using an anthropological reference, how different peoples think about their environments, space, and time is called their world view (Kearney, 1984). It is the contention of this writer that school practitioners and university faculty have very different world views on a number of important constructs. They share a common sense of purpose of providing an education for their students. However, modes of relating, language, and concepts of time are very different. A colleague, one of the founders of this same partnership program at another site summed up the dichotomy of school/university worlds in these terms:

> You know how when you go into a different culture how hard it is to feel close to the people right away and you go into

> a kind of culture shock. It's hard to go out from the university because you are not going to be comfortable with them and they're not going to be comfortable with you. You have to become part of the culture, and you have to bridge cultures and build that trust. You can't have the attitude that one culture is better than the other. If you do, it won't work and you'll never be accepted.
>
> You have to remember you can never be totally a part of the school culture because you can't roll your eyeballs in the faculty meeting when someone is speaking. We cannot join in that. There are certain things that are not appropriate. You must be in the culture but not of it. University professors don't fit perfectly. The thing that keeps us sane is the well being of our own students. It's not comfortable. It is not easy and we get so tired because of the effort required. (Margaret Vervelde, personal communication, August 19, 1997)

Language/Modes of Delivery

Language shapes thought. Certain vocabularies and modes of expression collect around cultures. Classroom teachers often hold and express their knowledge in stories about children and specific incidents that happened in their classrooms (Carter, 1993; Carter & Richardson, 1989). University faculty have been trained in graduate programs to generalize their knowledge into hypothesis and theories or to link their knowledge with other researcher's theories. A university faculty member talking to a classroom teacher in theoretical generalities may be perceived as having little useful to say about a specific situation faced by a classroom teacher who is bound by the immediacies of the continual and urgent here and now of classroom experiences. Language is used for communication, but it can also be used to create distance from other people, and specific word choices, especially the use of educational jargon, can be very intimidating.

When I was first assigned to my partnership school, I thought I would have little difficulty "fitting in" with the teachers as I had taught for ten years in an elementary school and retained a very good sense of what was good and practical and useable. I thought that once these teachers knew that I was one of them, I would be easily accepted. However, I found that sometimes when I would answer their questions I was using words that I had learned in research and critical dialogues with other university people. I recognized this from the reaction of the teacher I was talking to; the beginning of a glaze over the eyes and the down curve of the lip were dead give aways that my response was not perceived as useful. I had to realize that my mode of delivery and choice of words were as important as the information I was trying to convey. I could turn a teacher off quicker than a light switch by assuming that he

or she wanted to know about the "zone of proximal development." This is not an affirmation that teachers want to deal in monosyllabic words. That is not true either. What I have learned is that every teacher in that school works with children in the "zone," and they do not have to know the label to understand it. University faculty can easily be perceived as condescending when they spend too much time talking educational jargon. These classroom teachers are teaching me that discussions about Vygotsky are not relevant when 26 young students are in a classroom and the clock is running.

Time

"Time is something that is constructed to a large extent by the individuals who live that time" (Cambone, 1994). There are many kinds of time associated with schooling. Administrator time (such as the principal's) is very different from classroom teacher time and in turn that is very different from the university faculty member's time. The on-campus experience of teaching provides feelings of classroom time only when the professor is engaged in teaching a class. This is a varying percentage of time in a typical day. The elementary classroom teacher experiences vertigo, like being on a runaway roller coaster, every day for at least 90% of their day. As an on-campus instructor, I have some control over the load and structure of my days and weeks. While I may spend hours and hours each week in meetings as well as teaching, I know that I will have opportunities to return those phone calls waiting in my office and to conference with students and maybe even fit in some research.

The classroom teacher has no sense of leisure. Teaching events and student incidents all must be dealt with immediately, there is no later time. Phone calls are something done on the way to somewhere else. The sense of responsibility and the knowledge of the racing of the clock is part of the classroom teacher's identity. Cambone (1994) referred to teacher time as being polychronic, that is a phenomenological time characterized by doing several things at once. He noted that teachers spend much of this polychronic time in highly complex social interactions that take considerable concentration and effort to sustain. "In the dense activities of their days, teachers often sense time passing quite rapidly" (Cambone, 1994, p. 51).

I thought that as a veteran teacher, I had a clear understanding of the demands on teachers and the funny way clocks work in a classroom. I thought that this understanding would be readily apparent to the teachers at this school. I learned that these teachers understand even better than I did that while I might understand and appreciate the clock in their class-room, they knew that I could get up and walk out of their classroom and even walk out of the school. I neither share their awesome responsibilities nor own their clocks. Because of this, I will

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always be an "other" in their classroom. Finally, I understand that I am outside, looking in.

I am in both cultures. Some of my time is spent at the university campus attending meetings, advising students, and teaching a class here and there. Most of my time is spent at the elementary school. The pace is much faster and much more intense and immediate. It is easy to develop a sense of vertigo, balancing between these two world views of time.

A sense of calendar, one's place in the year, is also very different between these two institutions. Our university semesters begin after elementary classrooms have been in session for weeks, and the end of the semester happens as much as a month before the elementary school's winter or summer break. Energy and emotional levels of my students and I are sometimes out of synchronization with the school community we are in.

Observer/Teacher

Most days I sit in the back of these teachersÕ classrooms and observe my university student apprentices teaching their lessons. I am a shadow that silently bears witness to the process of learning on the part of young and older students. The classroom teachers always acknowledge me when I come in. It may be a nod, a meeting of eyes, or even a conversation. They know that I am there to observe my students, and they know I am seeing their students. I am an other; I am a guest.

I have taught in three of these classrooms so far. Substitute teacher shortages, covering in the computer lab, and teaching in a classroom while a mentor teacher guest lectures my students are some of the opportunities within a partnership that keeps a university faculty member honest about their classroom knowledge. Sixth graders are not impressed with degrees.

University Students

I have learned to be optimistic about our new teachers'. When my students finish their work at my site, they do their student teaching. The overwhelming majority of the students I have worked with have been wonderfully enthusiastic, talented, and hard working. Almost all of them were surprised at how hard it is to teach well, at how much they had to work to plan and then put together and teach a lesson to a room full of students. Some were surprised that their students were not interested in what they wanted to teach them. They came to me for advice and mentoring, and I would ask them, "Why would they be interested in this lesson? Why should they want to learn it? Why are you teaching it?" They very soon caught on that the teacher gets to ask questions. I hope they learned from me that their students need to learn to ask questions of them and themselves. Mentor me, mentor you. I

often think about my own practice when students asked me questions about their own pedagogy. I have noticed that they begin to question me as I am in the middle of instructing about why I chose to do something as part of a lesson. This occurs the second semester, about halfway through. My students build their own bridges to the culture of the school and the culture of teaching. I am beginning to identify mileposts in this bridge building as their awareness and understandings increase and deepen.

Trust

There is no collaboration, there is no partnership without trust. Within a site-based, teacher education program as part of a university-school partnership, trust must be developed among all of the participants. Teaching is a public profession, and the goldfish bowl analogies still ring true. Teachers also have a sense of space and owner-ship of that space, and their classrooms are generally viewed as their own "turf." There is a strong bond of ownership developed between teachers and their students. My university students and I invade that space every day. I have observed the process of new apprentice students moving into a classroom. Many classroom teachers hesitate and take my students' measure as they decide how protective they need to be concerning their own young students. Every mentor teacher has spoken about the awareness of responsibility for their students, their learning, and their well being. The first few teaching assignments are short and very directed as the classroom teacher watches the apprentices teach and their own students' reactions. By the second week, decisions have been made and a partnership begins to be negotiated between my students and the mentor teacher. It is generally during the third week that the mentor teachers accept the apprentices as part of their classroom. Important indicators for these mentor teachers are their students' reactions to the lessons and personalities of the university students.

I am in my second year of working with these mentor teachers at this site. A few of these teachers have accepted me too in their classrooms. Others are still taking my measure. They have taught me that they are risking much by having me in their room. Am I passing judgments on their teaching, on their bulletin boards, or on their interpersonal skills? Do I discuss them in my portable classroom after I have made my rounds; are they a topic of a lecture? If I write about them, will I tell the truth? I am risking little to nothing as I come through observing, and yet I am asking these teachers to open up their world to my students and to me. Trust is not something that happens immediately and is not tied to a calendar in any linear sense, although there must be time enough for experiences. Trust involves a mutual respect and understanding of the character of the person involved. It is not easy to gain trust quickly in a situation weighted so heavily on one person and

not on the other. I make gains. I do not roll my eyes, and I do not talk about other teachers.

I talk to the mentor teachers about my students and how they are doing in their classrooms. I talk about what my students need from mentors, and I ask them what they think. I am learning to talk less and ask more questions. These are the same lessons I learned as a beginning teacher.

Conclusion

The partnership program is a bridge between two cultures. University faculty are uniquely placed on the bridge, in the middle. Valuing, respecting, and listening are important components to the construction of this partnership. Understanding and patience from all members is also critical. Our students learn that they may not understand at the moment of an event why a teacher chose a course of action. They learn to ask their mentor teachers about this later, after school, to begin to understand the complexities involved in the decision making process for teachers.

I have learned to profoundly respect the myriad variables surrounding teaching in an elementary school and the additional variables imposed when a university teacher education program is housed in these same classrooms. I am tired every evening. The partnership program demands longer hours than the traditional campus-based teacher education program and more emotional involvement. This is much like the experience of the elementary teacher who leaves at the end of a longer day. We also both have some of the same feelings of satisfaction that real learning took place for our students. These classrooms, these teachers, these students keep me honest and make me ask the hard questions about my own curriculum development and teaching practice.

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The Denver Schools' Leadership Academy: Problem-based Learning to Prepare Future School Leaders

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The Denver Schools Leadership Academy is a partnership between the Denver Public Schools, the University of Colorado at Denver, and the University of Denver. This academy is a principal preparation program leading to state licensure. The program is conducted in a problem-based learning mode and allows students to integrate reading and class instruction with a great deal of on-site work in schools to deal with problems of practice. Portfolio development and assessment is ongoing throughout the program and is correlated to the Colorado Standards for School Principals.

Rapid changes in society, the considerable number of children living in poverty, increased violence, and a strong need to focus on improved literacy and academic achievement are factors that support the importance of assuring excellence in schools. The past decade of educational reform has made us increasingly aware of the key role of school principals in determining excellence in schools (Achilles, Keedy, & High, 1994; Lunenburg & Ornstein, 1996; Mitchell, 1992); yet, the role of principal has changed from being "the all-knowing patriarch of a school who wisely solves all problems" (Clark, 1995) to a role of instructional leader, cultural leader, group facilitator, and community liaison. To prepare leaders most effectively for these roles requires alternative approaches in principal preparation programs.

A unique alternative approach is occurring in Denver that assures that potential principals understand current issues facing schools and are well-informed about school district policies and research-based theory related to dealing with such issues. The Denver Public School District (DPS), in partnership with two universities within its urban boundaries, has been developing the leadership potential of its own employees in a unique leadership academy program, the Denver Schools' Leadership Academy (DSLA). It brings into partnership with DPS the University of Denver (DU) and the University of Colorado at Denver (UCD) to provide a program of study and application culminating in a state-approved School Principal's License. The program also provides opportunities for DPS employees who already hold such a license to gain more knowledge about specific district policies and procedures.

Description of the Academy Program

Planning for the Denver Schools Leadership Academy began during the Fall of 1994 at the request of Denver Public Schools Superintendent Irv Moskowitz. The intent behind development of the academy was threefold: 1) to recognize and develop leadership potential in current district employees, 2) to design a cooperative program between the school district and universities to prepare students for Principal Licensing through the State of Colorado, and 3) to enhance the awareness of district policies and practices for DPS employees who already hold Principal Licenses/Certificates but who are not employed as principals. Thus, two tracks of DSLA were established, with Track I providing an approved Principal Licensing program and Track II enhancing awareness of district policies. The delivery of academic instruction for Track I is by professors from the University of Denver and the University of Colorado at Denver. District policies and practices are presented to both tracks of students by DPS personnel.

Program Design

DSLA Track I students are required to complete an approved Principal Licensing program through a university in order to receive institutional recommendation to the State of Colorado for a Principal License. One-half of the students are admitted to the University of Denver and one-half to the University of Colorado at Denver. All students participate together as a cohort, taking courses and engaging in field-based experiences to obtain their Principal License. Students continue to work as full-time employees of DPS while in the academy. They are teachers, counselors, teachers on special assignment, or employees in specialized programs, such as alternative education or technology within the district. Track I students are employed at and seek leadership positions at all school levels within DPS (elementary, middle, and high school).

The Principal Licensing program takes one full school year for coursework and related field experiences, and a portion of one summer for an intensive practicum experience. Since program planning began in the Fall of 1994, the first group of students through this program completed the program between January 1995 and July 1995. This was an extremely intense pace for students and instructors. During 1995-1996, the program time was lengthened, with participant selection occurring in September, licensing coursework beginning in October 1995, and completion in July 1996.

In order to complete such a rigorous program during this short time, class meetings are often scheduled during one weekday afternoon and evening and on many Saturdays. One way in which DPS supports academy participants is by paying for release time for students to attend classes and engage in problem-based learning in field sites. DPS also

pays a portion of the university tuition costs for students in the licensing program.

Track II participants join Track I at scheduled times throughout the year to focus on district policies and procedures. A DPS central office administrator instructs during these times. These meetings allow all academy participants to supplement the focus of their licensing studies with specific information about the school district. For example, if Track I students are focusing on the study of school finance and the development of a school budget, a district administrator who deals with budget and planning will meet with the group to specifically address the DPS budget. This would be a meeting that would be attended by Track II participants as well. Thus, those currently holding a license and anticipating moving into administrative work within the district are kept informed about district programs, policies, and expectations for school administrators.

Recruitment and Selection

Prior to the beginning of each DSLA Licensing cohort, the DPS Department of Human Resources notifies all district administrators about the academy, the application timelines, and the anticipated start time for academy courses. This notification invites administrators to share this information with employees in their school or office and to nominate individuals whom they feel possess 1) strong leadership potential, 2) interest in preparing for the principalship, and 3) academic potential to successfully complete a rigorous university program for the Principal License in one school year. Interested individuals may also self-nominate.

Applicants for Track I submit the application provided by the district, a resume, letters of recommendations, and transcripts of undergraduate and graduate work. Applicants for Track II submit the same material with the exception of transcripts, since Track II participants do not enroll in a university program. Preliminary screening of these materials, as well as the next phase of interviewing, is done by a team consisting of university professors, DPS administrative personnel from the offices of elementary and secondary education, and current school principals. Applicants whose files meet university criteria for acceptance into a graduate program for Principal Licensing and show indications of leadership potential are invited to attend interviews for final selection into the academy. The interview process consists of a written activity as well as group and individual interviews. Approximately 8-12 weeks into the program, professors meet with each individual student to determine if it is in the best interest of all involved for the student to continue to pursue administrative licensing.

The number of candidates selected for DSLA Track 1 is influenced not only by candidate performance in the interviews, but also by district

budget and consideration of reasonable class size. Twenty-two DPS employees were selected for the first year of Track 1 of the academy, and 28 individuals were selected for the second year (1995-1996 school year).

Curriculum Design and Instructional Delivery

Problem-Based Learning

The DSLA partnership is an appropriate response to the growing dissatisfaction with existing preparation programs (Haller, Brent, McNamara, & Rufus, 1993; Murphy, 1992; Pitner, 1988), as it invites scholars and practitioners to determine together the best ways to prepare administrators. No longer does the "ivory tower" of higher education hold credibility as the sole dispenser of all knowledge that is needed to successfully lead and manage schools. The combination of a theoretical knowledge base that can be offered from the literature and from professors at the university and field-based, action-research settings for leadership learning in the public schools creates the environment and opportunities for problem-based learning to occur.

Problem-based learning results as problems of practice in the field are integrated with the acquisition of codified and theoretical knowledge and are then acted upon and/or reflected upon by the learner. Five major components of problem-based learning need to be realized throughout the process:

1. Learning begins with a problem.
2. Students are encouraged to develop definitions of the prob-lem and to discover possible solutions to the problem.
3. Faculty members serve as resources and coaches.
4. The emphasis is on learning how to learn rather than the learning of facts.
5. Clinical skills are learned along with academic theories. (Murphy, Martin, & Muth, 1994)

This involvement in problem-solving activities is of value to school administrators who must deal with problems that have no predetermined solutions (Bridges, 1992). The use of this approach to learning in a principal licensing program broadens the understanding of potential administrators about the field of administration and also builds their repertoire of knowledge and skills to transfer to leadership situations in which they may work.

Students in the DSLA are involved in problem-based learning experiences that relate to four domains of study throughout the

licensing program. These domains are:

1. Supervision of the Curriculum and Instructional Program of the School,
2. Administrative Leadership in Educational Organizations
3. Administering the School Improvement Process, and
4. Administering the Environment of Public Schools.

DU is on the quarter system, and UCD is on the semester system, thus transcripts for students in this cohort appear different, based on the university in which they are enrolled. DU students receive credit for a number of courses that are parallel in regard to content with the domains of study for which UCD students receive credit. UCD students in the DSLA program enroll in two domains of study each semester. These are followed by an intensive principal internship during the following summer. For the purpose of simplicity in addressing curriculum content of the program, the domains of study rather than individual courses are referenced in this paper.

Domains of Study

The domain entitled *Supervision of the Curriculum and Instructional Program of the School* addresses what can be considered to be the core technology of a school, its curriculum and instruction. Students focus on the philosophical underpinnings of the development of curriculum, the scheduling and instructional aspects that are considered as curriculum is implemented in a school, and the evaluation of curricular programs. Their problem-based work in the field allows them to explore all of these aspects about curriculum as they work in teams in schools to conduct a "curriculum audit." Simultaneous with their work in schools, they are reading and discussing scholarly literature regarding educational philosophy, curriculum theory, and program evaluation. Professors and guest instructors address these topics during class time. In this domain of study, students also address supervision of instruction. They take part in a state-approved Evaluator Training program to learn about supervising and evaluating new teachers, marginal teachers, veteran teachers, and master teachers. They do classroom observations and conduct pre- and post-conferences with teachers as they do on-site work in conjunction with their in-class study. Various models of supervision of individual teachers and of groups are presented to them in class and through the literature. Through completing these various studies and learning activities, students integrate codified knowledge with field-based work. In this domain of study, as in the others, students are asked to keep a journal. They are also asked to write reflectively about their problem-based learning, the integration of theoretical and codified knowledge with problems of

practice.

The domain entitled *Administrative Leadership in Educational Organizations* allows students to delve into leadership theories, to learn about leadership and management, and to better understand the moral and ethical implications of leadership. Students are asked to develop a written leadership philosophy/agenda in which they consider all aspects of what it means to be a leader and the personal attributes that they bring to the role of leadership. They are asked to shadow a principal to observe that principal's levels (elementary, middle, and high) to learn about how these principals view their leadership and management roles and responsibilities. They also address, in class and in school settings, various methods for short- and long-term planning. In this domain of study, they learn about various conflict resolution and group facilitation strategies. They are expected to take a leadership role in the school in which they work by leading and facilitating meetings and/or projects with staff and students.

The first two domains of study discussed focused on functioning within the school building. Another domain, *Administering the School Improvement Process*, addresses the larger realm of the school community. Students learn about ways to deal with community concerns as decisions and policies are set within the school. They read about and discuss models of communication and decision-making, while they are simultaneously working in schools to observe and participate in these models in action. A major project that is done during the study in this domain is that of working with a team to examine the School Improvement Plan of a school, examine procedures that were used in the development of the plan, and make recommendations to the school about ways to improve the development, scope, and presentation of the plan to the district. In order to accomplish this, the team of students must examine the accounting of attendance and student achievement reflected in the plan, the decision-making processes and budget implications that continually affect the implementation of the plan, and the culture and traditions of the school. Oftentimes, in examining and recommending regarding the school improvement plan, students will conduct a school climate and a needs assessment involving students, school personnel, and parents and community members.

As with the domains of study discussed above, a fourth domain also encourages integration of codified and theoretical knowledge with problem-based experiences in school settings. This domain is entitled *Administering the Environment of Public Schools*. Study in this domain is focused primarily on the financial, legal, and policy environment that affects the public schools. Students learn about developing a school budget, and then they implement these learnings as they examine the relationship of the budget to the school improvement plan in the project described above. Legal issues that are learned in relation to education

affect all of their problem-based learning, regardless of the domain of study.

This design of study across the domains has demonstrated that clinical skills (i.e., the capacity to recognize and solve problems of professional practice) are best acquired when programs provide both content and process ways of thinking about problems as learning occurs in school settings (Schon, 1987).

Assessment of Knowledge and Skills

Course content in each of the domains has been adapted and designed to meet Standards for School Principals in Colorado. As students progress through the entire licensing program of study, they continually develop their portfolios, the framework for which is the state standards for principals. Review of this portfolio represents a culmination to and final assessment of the work in the licensing program. Student portfolios include documentation of knowledge and skills related to the following six standards:

1. The principal leads a school community that is committed to and focused on learning.
2. The principal models and sets high standards to ensure quality learning experiences that lead to success for all students.
3. The principal behaves ethically and creates an environment that encourages and develops responsibility, ethics, and citizenship in others.
4. The principal recognizes, values, and supports ethnic, cultural, gender, and economic diversity throughout the school community, while striving to provide fair and equitable treatment and consideration for all.
5. The principal is a continuous learner who encourages and supports the personal and professional development of self and others.
6. The principal organizes and manages human and financial resources to create a safe and effective working and learning environment.

Related to each of these standards are numerous benchmarks outlining knowledge and skills. The coursework that DSLA students complete in their licensing program provides a knowledge base supporting each of these six standards. The field-based work, in addition to work each of the students do in their own careers as educational leaders in their schools, supports the development of skills related to the standards. Students document knowledge and skills in their portfolio and also write a reflective paper for each of the six

standards. Reflection upon all work and experiences within a standard is a powerful integra-tive learning process.

Upon successful completion of the licensing program and a state exam, students receive a Provisional Principal's License from the State of Colorado. Their portfolio's initial purpose is a compilation of work done in the academy that meets the state's standards, but it also serves an ongoing purpose. For practicing principals in Colorado to move from a Provisional to a Professional License, they must complete an induction process and be endorsed by their district for the Professional License. The induction experience involves on-the-job training under supervision by a mentor. Once they have been endorsed, to renew their license principals must maintain a professional development plan (a portfolio) that is reviewed prior to renewal. Thus, development of a portfolio continues to serve leadership academy participants as they work in administrative positions in schools.

Program Evaluation

Program evaluation feedback was obtained from DSLA participants in each of the first two cohorts. Evaluation was conducted informally through verbal and written comments from students and verbal feedback from DPS personnel and university professors. Recommendations from each academy cohort assisted the planning for the next cohort.

DSLA Track 1 participants have been generally very positive about their experiences in the DSLA. Comments indicated that they have felt the curriculum stimulated critical thinking about educational issues and provided a balance between theory and practice. Strategies that seemed to be most helpful for learning were those that allowed active involvement in the learning process in class meetings as well as in field, problem-based learning.

University and district personnel also have felt very positively about the DSLA since its beginning. The opportunity for the three institutions to work together is good for all and is enhanced by having students in the program who are enthusiastic, committed to learning, and demonstrating leadership potential.

Within one year after the completion of the first cohort of students, over 50% of these individuals have made upward career moves within the district. We will continue to monitor the career progress of individuals from the first two cohorts and expect to see a high percentage of them moving into educational leadership positions. It is important that, as plans are made for the continuation of the academy, all available data is used indicating the number of anticipated administrative position openings in the district by the end of that year's academy. The number of licensed individuals in the district who are not working in building-level administrative positions also needs to be

considered.

Summary

The success of the Denver School's Leadership Academy is evidenced by 1) the number of DPS employees who are now licensed to be school principals, 2) the increased awareness of district goals and policies by many potential leaders within the district, 3) the supportive networking relationships that have occurred among students in the program and among personnel at DU, UCD, and DPS, and 4) comments by all involved on the benefit of preparing school leaders through this unique program.

The Denver Schools' Leadership Academy hopefully is bringing the highest quality administrator to the Denver Public Schools. This program also is answering the call of the National Policy Board for Educational Administration for reform in the preparation of school administrators by addressing the following from the Board's agenda:

1. Mount vigorous recruitment strategies to attract the brightest and most capable candidates of diverse race, ethnicity, and gender.
2. Dramatically raise entrance standards to administrator preparation programs.
3. Develop the elements of the curriculum to transmit a common core of knowledge and skills grounded in the problems of practice, including societal and cultural influences, teaching and learning processes, organizational theory, methodologies of organizational studies, leadership and management processes, policy studies, and moral and ethical dimensions of schooling.
4. Establish long-term, formal relationships between universities and school districts to create partnership sites for clinical study, field residency, and applied research. (Lunenburg & Ornstein, 1996, pp. 548-549)

The success of school administrators who have been prepared through this program will be followed closely during the coming years.

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Connecting with Schools for Improved Teacher Education

Mary H. Mosley

Four central Arkansas schools and the University of Central Arkansas currently are implementing professional development in a collaborative program geared to improve teacher preparation. This "Break the Mold" program includes university and public school teachers, administrators, college-student interns, and parents. Professional development has focused on implementing and refining the teacher preparation model, including criteria and values development, research, curriculum evaluation, mentor professor and mentor teacher partnerships, role exchange, professional field service planning, needs of interns, student advisement, and mutual respect. Changes and renewal are occurring in all sites for all groups.

Four central Arkansas schools and the University of Central Arkansas currently are implementing professional development in a collaborative program geared to improve teacher education. The program has resulted in positive and rewarding professional development for all partners. This Break-the-Mold (BTM) teacher preparation program includes teachers, administrators, and parents of four elementary schools as well as two school superintendents, university faculty, college-student interns, and other administrators. During the past two years this partnership has initiated program activities to bridge the gap between theory and practice and has created a successful center of pedagogy and professional development. Program accomplishments related to professional development have been abundant and include both single-partner tasks as well as partnership-centered activities. A steering committee comprised of representatives from all groups meets monthly to evaluate and plan activities and maintain continuous study of accomplishments, fulfillment of goals, and improvement of program.

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New Model

Because Arkansas currently is engaged in developing new licensure requirements that will impact not only the university students entering the profession but also the practitioners in classrooms, the collaborative effort is focused on developing a model for redesigning teacher preparation programs and staff development for teachers to help meet new state standards and requirements for licensure and recertification. For the more than 20 school districts who participate in the university's teacher preparation program, as well as other districts throughout the state, the collaborative schools are providing a service of investigating new programs of teacher education and staff development.

The collaborative is addressing the design and implementation of the model as well as specific assessment measures including teacher and intern portfolios, classroom observation practices, structured interviews/ conferences among participants, peer evaluations, and reflective practices. By creating this new environment for preservice teacher education, the university and the schools are providing avenues for assessment based on how well teaching strategies reflect knowledge and accomplishment of state licensure requirements.

Professional development and renewal opportunities are occurring simultaneously for university faculty and students and public school educators. Direct exposure and experiences for university interns not only provide growth for the college-student interns, but also for the teachers who are engaging in new partnerships and teaching patterns. University faculty are teaching elementary and secondary students while the public school teachers are working with and teaching classes of university interns/students. These experiences are occurring within the new situations as university interns move through the gateways levels of admittance to the teacher education program, block courses, field experiences, and the directed teaching experience.

New designs for curriculum, instructional practices, and assessment are obvious areas where professional development opportunities are resulting from the collaborative efforts. These opportunities address other state and national licensure movements and authorities, such as the American Association of Colleges of Teacher Educators, the National Council for Accreditation of Teacher Education, and a proposed Arkansas statewide consortium. This consortium will address authentic and multiple assessments based on state legislation requiring that teacher education be linked to identified learner outcomes. All of these opportunities are enhanced because of the partnership and mutual support available within the collaborative. Students, faculty, and educators, as well as parents, are able to call on the resources and assistance of all within the team. According to a survey administered to these groups, results within each group were significantly positive in reported improvement of teacher preparation. Survey respondents also

agreed that the professional relationships and networks being developed are among the most powerful staff development options available.

Criteria and Values

Collaborative participants learn to function as equal partners to ensure a commitment to the following criteria that provide the foundation and values for teacher education and all professional development opportunities and activities:

1. Each community of learners deserves the best quality education for its students.
2. As valuable learning laboratories, schools undergoing simultaneous renewal must be places where students, teachers, parents, and citizens participate as lifelong learners.
3. To ensure the modeling of "best practice" in schools and to fulfill professional commitment, teacher preparation and professional development must be a shared responsibility.
4. Practical experience with constant feedback is an essential component of the learning and professional development process.
5. Cultural and ethnic diversity is an important variable in the professional development of teachers and future teachers.
6. Professional development, including teacher education, must be a flexible process, which acknowledges the ever-changing needs of society in a dynamic world while upholding fundamental democratic principles.
7. Professional development for all parties includes the translation of research into practice and dissemination of what is learned to all partners, as well as to other school districts and universities.
8. Educators, students, and parents should be enabled and empowered to participate in developing and evaluating curriculum.

These values are consistent with the vision to plan and develop a model of professional development and management including the principles of quality planning, quality control, and quality improvement. Participants share the responsibilities of developing and refining criteria and values. There is a remarkable degree of agreement about the need for integrating the parts of the program. Huberman (1992), Louis and Miles (1990), and Fullan, Bennett, and Rolheiser-Bennett (1990) have come to the conclusion that all levels of the system must work

together (not merely be coordinated) so that effective staff development and, thus, teacher education and school improvement can occur. Because of concurrent planning by the Break the Mold steering committee, the university and the schools, all parties are better able to establish standards and benchmarks for "best-in-class" components of the professional development design. The "best-in-class" approach is generally consistent with Goodlad's concept of "best practices." However, the "best-in-class" approach provides for more reliance upon the use of experimental strategies to test each component of the design. This is most appropriate to a vision of change that is thoughtful and reflective in all aspects.

New professional standards are available in almost all curriculum areas. The most effective staff development is responsive to, and generated by, the learning community. Teachers are using information gained from research, and this is especially rewarding when the research is from their own classrooms.

Beyond Research

Schmoker (1996) is emphatic in his insistence that "research is not enough." He believes that "for every item of research we adopt, we must conduct on-site action research." He adds that the research carried on at the local level is what makes the more formal, outside research "work." The effects of research must be studied in order to make adjustments and add to the authenticity of the research. This is the optimum staff development opportunity. Teachers and university faculty and college students must learn to respect and contribute to the best that we know of effective teaching and improvement. Schmoker is convinced that we "forfeit the benefits of the rich knowledge base that can inform our teamwork" unless we build goals on the best research (Schmoker, 1996, p. 65).

Most educators acknowledge that there is a rift between what we know and what we do. Senge (1990) claims that what "we have learned about teaching and learning the last 15 years is among the most exciting discoveries of our 200-year history." Although in some circles "research" may command little if any respect, or be given no more than lip service, the Break the Mold participants continue to investigate and rely on current knowledge and principles related to the best teaching. Research has a definite bearing on the practices and staff development emerging from the Break the Mold collaborative. Colleagues take advantage at retreats, workshops, and even steering committee meetings to read, share, and discuss articles and assess their implications. The most important use of the research, however, is within the classrooms of the collaborative where partners are considering effects and success within the actual school setting.

Curriculum Evaluation

Because of research and staff development efforts, the Break the Mold collaborative members are more involved in the process of curriculum, in the implementation of curriculum and in strategies that foster pluralism, learning styles, inclusion, and interactive technologies. Other trends are the use of more authentic assessment embedded in curriculum and an increased awareness of the politics of curriculum. A broad-based curriculum fosters tolerance, respect, and lifelong learning for students and professionals who enjoy their own rights and responsibilities while respecting and valuing these in others. These are political, as well as curricular, issues. Including emphasis of curriculum and assessment within staff development initiatives is important to successful staff development and professional growth, while awareness of the impact of political issues is equally appropriate for topics of professional development and growth.

Although partners in the collaborative are assuming responsibility for their own professional growth, the schools, districts, and universities also are more aware of their responsibilities of providing the time, resources and incentives necessary to support staff develop-ment. As teachers and educators accept and meet increasing challenges within the partnership, the importance of maintaining staff development also increases. Time and resources are needed for teachers and interns, at the university and within the public schools, as they reflect on concerns and problems within the demands of curriculum and on teaching to meet the needs of varied student populations.

Partnerships

Trips to other collaborative programs, retreats for sharing and professional growth, participation at conferences, and sharing with the community and professional colleagues have been strong staff development components as all participants consider what is best and most appropriate for change. These team-building activities create a strong basis and partnerships for professional development and growth. In the fall of 1995, twenty-two elementary teachers, one principal, one parent, and the BTM program director (mentor professor/mentor teacher team) participated in a program visitation to El Paso, Texas. The team first visited the University of Texas at El Paso where university faculty involved in a nationally recognized collaborative with local public schools provided information on their program. After the university interaction, model schools were visited where instruction, assessment, and involvement of parents in a parent center were only a few of the areas reviewed. Different groups of collaborative teachers, interns, and principals subsequently have visited programs and elementary Schools in New Mexico and Missouri with similar positive experiences. Another staff-development opportunity, based on the

expressed needs of this team, included participation in a University of Central Arkansas College of Education all-day workshop on portfolio and process assessment presented by well-known assessment scholars, Mary Diez and Lucy Cromwell of Alverno College.

During the visit to the Missouri schools, a special relationship developed between the New City School of St. Louis and the Ida Burns Elementary School in Conway. Since the initial visit, teachers from the New City School have visited Arkansas and two additional trips by Arkansas teachers to St. Louis have been acclaimed by participants as "some of the most rewarding staff development and professional growth available." This networked sharing of ideas among teachers, in a teacher-to-teacher format without any formal or highly structured "workshop" constraints, has become the basis for a continuous staff development model. Teachers from the cities and schools visited and from our local collaborative are becoming an extended community of learners with parents, interns, and other educators.

Role Exchange

Teachers at all levels within the collaborative have become the most immediate and trusted resources for other teachers, for parents, and for college students, both in the local schools and at the university levels. Group and individual roles become less rigid as they are expanded and redesigned through staff development activities. The practice of teachers assisting teachers through staff development is generally considered among the most effective forms of professional growth, but the encouragement of sharing, within the partner schools as well as within the state and region, of current "best-in-class and most effective teaching practices" has become the dynamic model of ongoing staff development. This occurs at faculty meetings, at retreats and workshops, and informally within schools. As teachers become a team whose members share responsibilities for planning curriculum and instruction, both for elementary students and for college interns, knowledge is exchanged to produce quality staff development. Elementary teachers are teaching college interns; college faculty are teaching elementary students. This is possible because all the schools within the partnership have established university classrooms in each school setting. Participants are teaming for presentations at local and national conferences, for writing and publishing experiences, and for classroom research.

Needs of Interns

Structure is provided by identification of needs and goals. Based on these identified areas, teachers share ideas of teaching strategies, materials, assessment, parent involvement, and entirely new and innovative ways to achieve goals and purposes for interns. Staff

development is authentic and real. It is not imposed upon the participants but is created and sustained by their own efforts and contributions.

Each of the 25 elementary mentor teachers and the involved university faculty are working very productively with the intern college students to provide the most successful field experiences. University interns are spending more hours in school classrooms and actively participating earlier than traditional education students. They also are involved in the activities for the week of school opening and the week of school closing. BTM experiences expand with each semester of participation. Through one-year placements in two schools or two-year placements in a single school, there is a greater chance to build a sense of collective responsibility among the university and school teachers and BTM interns for the learning of all of the children in the school.

Advisement

The guidelines that structure recruitment and initial experiences for college interns provide their first experiences with formal "staff development." Interviews precede formal admission to the program. Criteria and expectations are presented and discussed. College students at the "junior level" follow the university calendar and work in the schools two days a week for two and one-half hours during the mornings. "Senior level" students follow the school district's calendar and experience the opening and closing of the school year. They are in the schools two full days each week, following the schedule of the teacher to whom they are assigned. They are required to participate in classroom activities and complete field requirements assigned by university professors. At this level the college interns attend faculty meetings, inservice meetings, conferences, and parent meetings as appropriate. The culminating experience is the directed teaching experience. Interns are far better prepared for success as a result of the expanded field experiences that precede directed teaching. Advisement of students is a continuous process, based on reflective thinking of interns and faculty. Both written and oral communication is provided.

If interns must be absent or late, they are required to telephone their assigned teachers. Students involved in the directed teaching assignment must notify the University Professional Field Services officer. Documentation through reflective entries in a loose-leaf binder is the vehicle for keeping records of accomplishments and trouble areas throughout the levels of the program. Much of the documentation is in the form of reinforcement and reflection on successful experiences. However, keeping records of tardiness, absenteeism, unprofessional behavior, or lack of fulfilling responsibilities gives early opportunity for guidance and improvement. In addition to written and informal oral communication, occasionally special meetings with interns are called to

provide guidance and support. All activities are documented for future reference, and this provides professional development for the college interns, as well as for involved faculty and educators. The combined strategies of guidance and support are maintained at a highly positive level to ensure success to the greatest degree possible. If interns are reinforced in their successes and guided through any trouble areas, then the program of early staff development is effective. For the occasional student who may not respond to this assistance, more intense measures are implemented.

Caveat

Staff development efforts are guided by the caveat that warns of a serious mistake—setting too many goals or moving in an unorganized manner to attempt to accomplish everything at once. This is true for beginning or experienced teachers. The literature includes numerous admonitions to avoid this pitfall:

1. Schaffer (1988) admonishes educators to resist the organizational tendency to "set too many goals . . . covering too many bases" (p. 29).
2. Fullan et al. (1990) fear that implementing too many initiatives at one time can result in "massive failure" (p. 71).
3. Hopkins and West (1994) emphasize the fact that "successful schools set priorities for development that are few in number" (p. 185).

Unless staff development is focused on a limited number of very important goals, the programs can easily become bogged down in a maze of objectives, with participants flitting from one program to another, which results in nothing of any real value or consequence for improved professionalism and instruction.

Time constraints limit teachers to working well on a few programs or goals, and as new and occasionally conflicting professional development projects are added, teachers have great difficulty successfully reflecting on progress or continuing improvement and team building efforts. The community and constituents of the public schools are placing increasing demands on teachers. Professional development must enable teachers to make choices among many desirable goals and then set and hold to priorities.

The current collaboration between the University of Central Arkansas and the participating Arkansas schools has resulted in obvious and documented improvements in teacher preparation and simultaneous staff development for all. The continued communication and mutual involvement of all parties (college interns, college and public school

teachers, parents, and administrators) are the keys to continued success. Energy and commitment to common goals remains high. Perhaps the most important factor in successful staff development is what Schaffer (1988, p. 52) refers to as "zest." This zest is the result of optimism and enthusiasm that helps maintain energy for attaining goals. "Zest" also removes the impediments and stumbling blocks of negative and uncommitted attitudes, an ever present danger for any staff development project. The result of maintaining energy and avoiding negativism is a "breakthrough strategy" for reaching goals. This strategy "releases force and energy in reaching important short-term goals—and uses them as the wedge to break through institutionalized barriers" (p. 60). Immediate and real successes are needed so that people will experience increased confidence and an expanded vision of what is possible. By building optimism and relying on the research that presents the best we know about learning, we are enabled to attain effective change. What others have studied and learned, or relearned, can help us avoid any waste of time and move into staff development that is successful and constructive.

Mutual Respect

Mutual respect is evident as mentor professors and mentor teachers share ideas and encourage each other while they assist the interns. The university and public schools have become one team with a common goal. Throughout all program activities, professional development results from the renewal occurring simultaneously within the program components and within individuals. Already this has been clearly established as a primary program benefit. Results of surveys administered to all involved BTM participants have revealed clearly and repeatedly the collegiality and growth that are resulting from the program. At articulation sessions regularly scheduled in each partner school, participants work through problems, face issues, and design solutions. Articulation sessions include mentor teachers, university faculty, and interns, sometimes together and sometimes in small groups. The first ten students who graduated after the initial two years of the program have returned to praise repeatedly the benefits they are continuing to enjoy as a result of the collaborative. Not only is professional growth apparent, but new friendships and relationships are being established that will enhance professional development for many years. The university and public school collaborative is paying big dividends in professional growth and new opportunities are evolving almost constantly as educators and students work together for improved learning and staff development.

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The Rural Multicultural Training Collaborative: A University-Local School Partnership

Patricia J. Peterson and Lela B.W. Montfort

There is a shortage of special education teachers, especially in rural areas. This is an increasingly significant problem for rural school districts attempting to provide quality education for culturally and linguistically diverse special education students. The Rural Multicultural Training Collabor-ative was a four-year, U.S. Department of Education funded, training partnership in special education between Northern Arizona University and local school districts in rural Arizona. It was a field-based program providing training and experiences in multicultural education, rural education, and principles of special education inclusion from 1993 to 1997.

While the debate concerning the possibility of a teacher shortage in the 1990's continues (*Education Week,* 1991), there is virtually no debate concerning the need for additional special education teachers. A poll by the National Education Association indicated that special education teachers were needed by more schools than any other group of educators in the United States (Pollard, 1991). This shortage has also been identified by numerous other individuals and groups including the American Federation of Teachers (1990) and the National Association of School Psychologists (1991). Meyerson stated that "special education teachers were in great demand throughout the nation" (1991, p. 346). He believed that the trend would continue into the 1990's and could become even more acute as additional handicapped students (e.g., preschool aged children) were identified. Satorini (1992) suggested that the shortage of special education teachers resulted in some schools employing less than fully qualified educators. This has certainly been true in selected areas of Arizona.

We are aware of numerous teachers serving as special education teachers with minimal preparation and in some cases, no formal preparation at all. This may be hard to believe in the 1990's, but it is true. A recent graduate of Northern Arizona University's master's program, for example, recently took a position as Director of Special Education in a very remote area of Arizona. This individual completed a generic special education master's program not designed for teachers or those desirous of becoming teachers. Nonetheless, he was employed as the Director of Special Education in this particular district and was ultimately responsible for the educational welfare of over 500 handicapped children. This individual had no practical experiences

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whatsoever with handicapped children. When questioned about this unusual situation, the superintendent of the district stated that the person had some training in the area and that something (and presumably, someone) was better than nothing (and no one). To say that this is a professional problem in need of resolution is perhaps the greatest understatement one can make. It is a significant problem. Quite simply, more trained and fully qualified professionals are needed in our nation. In 1991 *Money* magazine listed "special education teacher" as the seventeenth most "in demand" occupation for the 1990's. The editors of *Money* stated,

> Special education teachers will be needed across the nation with selected areas experiencing severe shortages. Special education teachers who combine their professional training with training in bilingual education will be in particular demand. (p. 37)

Clearly, the national demand for fully trained and certified special education teachers is present and will probably continue to grow over time. At the state level, Arizona continues to have a great deal of need for special education teachers, especially in rural areas.

Unlike many other states, there are only three state supported universities in Arizona and only two of them operate special education training programs at the undergraduate level. Arizona State University (ASU) operates both undergraduate and graduate training programs. However, ASU is in a peculiar situation. It is a very large school (the seventh largest in the United States) and is in the middle of a very large and growing metropolitan area. What makes the situation so peculiar is that the school is located in the only large metropolitan area in Arizona. Arizona is very rural and the typical Arizonan's interests are much more consistent with a rural agenda than one of a major urban university. The only other major city in Arizona (outside of the many cities served by ASU in the greater Phoenix area) is Tucson. Tucson is home to the University of Arizona, the state's land grant institution. It operates several master's and doctoral level special education programs. However, relatively few teachers are graduated at ASU as compared to Northern Arizona University (NAU).

Most teachers, including special education teachers, in Arizona are trained at NAU. The mission to train teachers is deeply felt at NAU as it began as a Normal School. In 1984, NAU President Eugene Hughes convinced the state legislature to abolish the old NAU College of Education and develop the new Center for Excellence in Education. The basic premise was to bring together resources from NAU, the state, and the nation to address the problems in public education. The argument was compelling enough to cause the legislature to commit one million

additional dollars to the university. These funds were spent to develop an innovative matrix administrative structure that encouraged risk taking and innovation and several programs like the award winning "Elementary Block Program," which trains teachers in schools rather than on campus. Has this bold experiment worked? Many people think that it has. John Goodlad, in his most recent book, *Teachers for Our Nation's Schools* (1990), praises the NAU teacher training program as a model for others. NAU's programs have won awards from AACTE, NEH, and others. A Director of Special Education in the state recently said of NAU's special education program:

> NAU produces the best special class teachers in the state. In fact, I believe the students graduating from that program are among the best in the nation. They are confident, experienced, and very well trained. I try to hire as many NAU graduates as I can. The problem is, they are snapped up as soon as they are available by every district in the state! (McCandrews, 1992)

Northern Arizona University's Setting

The area served by NAU is extremely rural and populated by a large number of minority citizens, most notably, Native Americans and Hispanics. Persons unfamiliar with Northern Arizona are almost always surprised by what they find here. A large part of Northern Arizona is forest. Annual snowfall can reach over 200 inches. Many communities are extremely remote, and a few communities have no phones or paved roads. NAU is adjacent to the sprawling Navajo Reservation, which is the largest reservation in the United States. A few years ago, NAU placed a student teacher on the Supai Reservation, which is located in the Grand Canyon of the Colorado River. At Supai there are no roads, and the only way to get there other than by helicopter is to traverse an eight mile horse trail. This trail can be treacherous after a summer thunder-storm or after a winter snowstorm. Needless to say, completing the supervision of this student was quite a professional (and physical) challenge for NAU's faculty.

The geography and demography of NAU's service region makes the provision of special education services very difficult. Training programs must be carefully tailored to meet the needs of our many constituents. Even when this is done, the recruitment and retention of good special educators is difficult. In sum, there is a tremendous need for additional special educators in Arizona. Some vacancies go unfilled and some positions are filled by minimally qualified persons.

Special Needs of Culturally Diverse Exceptional Children

The number of children born to ethnic and language minority families is increasing every year. By the year of 2,000 this nation will

have 260,000,000 people, one of every three of whom will be black, Hispanic, or Asian-American (Yates & Ortiz, 1991). Dramatic changes are taking place in America's public schools and today's educators must be prepared to teach students who are more likely to be a member of a minority racial or ethnic groups. The National Center for Educational Statistics estimates that there are approximately 9.2 million school age students in the U. S. whose primary language is not English. Estimating that 10.7% to 15% of these students may be handicapped, then 984,400 to 1,380,000 students are linguistically different as well as handicapped (Baca & Cervantes, 1989). According to the Arizona Department of Education, as of October 1992, Arizona has a total of 220,493 Hispanic and Native American students. If 12% of these students are identified as needing Special Education services, then Arizona needs to serve 26,452 culturally and linguistically different exceptional students.

Fradd and Bermudez (1991) stressed the need for improving instruction for exceptional minority language students. They discussed the challenge of matching instructional and assessment approaches with the process of second-language learning to facilitate instruction for at-risk and handicapped LEP students. In the research reviewed by Baca & Cervantes (1989), one of the key factors that determines the degree to which the needs of language minority exceptional children are met is the preparation or lack of preparation of teachers to be responsive to the unique needs of these students and to be more sensitive to their cultural heritage. Teachers need to be trained in non-biased identification and assessment procedures, use of culturally and linguistically appropriate methods and materials, as well as how to work with parents of other cultural and linguistic backgrounds.

Special Needs of Hispanic Students

The single largest group of non-English background children in the U.S. is Hispanic. Of the Limited English Proficient (LEP) population, 75% of these children are native Spanish speakers (Baca & Cervantes, 1989). In Arizona, as of the 1990 census, there are over 688,338 Hispanics making up 18.8% of the population. A disproportionately high number of handicapped students in Arizona are Hispanic, and their families are poorer than average. Hispanic students tend to be more mobile than Anglo students, and they drop out of school three times as often as Anglo students (Gunderson, 1991). In some counties of Arizona many Hispanic families work on farms. Their migrant life-styles often hurt their chances of school success. Arizona citizens continue to debate issues surrounding bilingual education and an "English-only" state mandate.

For the 1991-92 school year, Arizona enrolled 574,890 students in public elementary and secondary schools, and 22.5% of these students

were Hispanic, for a total of 129,350 students. If 12% of these Hispanic students are identified as requiring Special Education services, then Arizona public schools need to serve 15,522 Hispanic special education students. As of September 1993, the Certification Office of the Arizona Department of Education reported that there are only 77 Special Education teachers who also hold provisional or regular endorsements in either Bilingual Education or ESL. This represents 77 teachers to serve an estimated 15,522 Hispanic special education students.

A September 1994 survey of Arizona school districts with high enrollments of Hispanic students was done by Patricia Peterson to determine the districts' perception of the need for more bilingual special education teachers. The results are indicated in Table 1 below.

Table 1: Need for bilingual special education teachers for Hispanic youth.

School District	Number of Students	% Hispanic Students	Need for Bilingual Special Education Teachers
Nogales	6,000	98%	Extremely High
Phoenix Elem.	8,000	76%	Very High
Tucson	58,891	39%	Very High
Yuma Area			
Crane #13	5,100	56%	Very High
Gadsden	2,005	100%	Very High
Somerton	2,500	95%	Very High
Yuma Elem. #1	9,500	52%	Very High

In summary, all the districts surveyed indicated a great need for bilingual/multicultural special education teachers. Some of the districts, such as Crane Elementary #13 reported that they currently did not have any bilingual special education teachers. More data on number and lack of bilingual special education teachers in the Yuma area are documented in the next section.

Yuma Area Need

Yuma is located in the extreme southwestern part of Arizona on the borders of California and Mexico. The school districts in the Yuma area primarily serve Hispanic children with a significant portion of these children classified as Limited English Proficient (LEP). The four major elementary school districts in the Yuma area enroll approximately 19,000 students of whom 68% are Hispanic. There is no teacher training program in Special Education in the Yuma area to prepare teachers to serve special education students, much less one designed to prepare special education teachers to meet the needs of minority special

education students. Arizona State University in Tempe is a three hour drive and the University of Arizona in Tucson is over four hours away from Yuma. While there is a campus of NAU in Yuma, this campus does not currently have a special education teacher training program. Specific data collected from the Yuma area school districts on number of special education students, percent Hispanic special education students, number of special education teachers, and number of bilingual in Spanish special education teachers are shown in Table 2 below.

Table 2: Need for bilingual special education teachers in Yuma.

School	# of spec. ed. students	% Hispanic spec. ed. students	# of spe ed. teachers	# of bilingual/ multicultural spec.ed. teachers
Crane	560	50%	36	0
Gadsden	150	100%	6	0
Somerton	285	95%	16	1
Yuma Elem. #1	783	52%	33	1

Native American Need

According to the last U.S. Census, about .8% of the nation's citizens are Native Americans. Unfortunately, we are not attracting enough Native Americans into the special education training profession. Cummings (1993) suggested that "institutions of higher education, particularly graduate programs, are not especially supportive of Native American persons and generally make few efforts to accommodate their unique personal as well as professional needs" (p. 12). The Native Americas have much to offer, and it is in their, as well as the nation's, best interests to promote efforts to provide advanced training to them.

Many of the communities in NAU's service area are on or near Indian Reservations. The need for trained special education teachers on reservations is often acute. Lancaster (1992) found,

1. the recruitment and retention of qualified special educators on reservation schools are significant problems,
2. reservation schools are often forced to employ minimally qualified persons, and
3. a high number of teachers (about 29%) leave after one year on the reservation and an amazing 9% of teachers leave before their first year contract is up.

Many subjects in Lancaster's study felt that most teachers working on or near reservations are simply unprepared for the realities of work there. They were unaccustomed to the lack of services and were almost always totally ignorant of the culture, language, and harsh climate.

Some were literally shocked. A Director of Special Education recounted one incident this way:

> A new teacher from North Carolina pulled up last year with this U-Haul. We had hired him over the phone. We tried to explain to him what life was like here. He looked around a bit; climbed back in his truck, and drove off. He never even moved in. I guess he was scared off. (Lancaster, 1992, p. 92)

Findings from Lancaster's study clearly indicated that *in situ* training was preferred by the respondents. Respondents stressed that teachers must be familiarized with Native American culture while they receive guidance from experienced professionals who support them.

In Arizona, there are a number of Native American tribes, including the Navajo, Hopi, Hualapai, Apache, Pima-Maricopa, San Carlos Apache, Tonto Apache, Fort Mohave, Mohave-Apache, Tohono O'Odham, and White Mountain Apache. The 1994-1995 Arizona summary of pupil enrollment [excluding Bureau of Indian Affairs (BIA) schools] indicates that 49,706 Native American students are enrolled in Arizona public schools. This enrollment is substantially higher when BIA students are also considered. Often school districts charged to serve Native American students are faced with an inability to attract well trained special education personnel for reservation-based schools owing to perceived living conditions and travel distances. Additionally, recruitment efforts on the part of university training programs have yielded relatively few Native American individuals pursuing careers in special education in traditional campus-based programs.

When special education teachers from traditional university programs are hired on the reservation, they have little or no specialized training in the area of best practice in assessment, curriculum, and teaching methods for Native American students. Thus, the assessment process and resulting educational diagnosis, placement, and programming decisions may be severely compromised.

Tuba City Area Need

Tuba City, on the Navajo Reservation and bordering the village of Moenkopi on the Hopi Reservation, is 75 miles northeast of Flagstaff. The schools in the Tuba City area serve a population of 95-100% Navajo and Hopi students. There is no special education teacher training program in the Tuba City area, and consequently it is very difficult for teachers to leave their jobs and families and travel to Flagstaff to pursue a special education degree. There is a tremendous need for Native American special education teachers. The Special Education Coordinator at Greyhills Academy High School (a grade 9-12 boarding school) recently reported that they served 82 special

education students during the 95-96 school year and an additional 200 referrals for special education assessment have been turned in as of May 1996. Without properly training bilingual/multicultural special education teachers, appropriate assessments are extremely difficult. Table 3 below shows the critical need in the Tuba City area for special education teachers with this type of training. In May 1996, Patricia Peterson surveyed the schools in the Tuba City area. The results of the need for bilingual/multicultural special education teachers are indicated in Table 4 below.

Table 3: Number of special education teachers needed in Tuba City.

School District	Number of special education students	% Native American spec. ed. students	Number of special education teachers	# of Native American spec.ed. teachers
Tuba City Public	306	95	19	2
Tuba City Boarding	49	100	2	0
Greyhills Academy	82	100	3	1
Moenkopi	28	100	1	0

Table 4: Need for bilingual special education teachers in Tuba City.

School District	# Students	% Native American Students	Need for Bilingual/ Multicultural (Navajo/Hopi) Special Ed Teachers
Tuba City Public	2,835	95%	Critical
Tuba City Boarding	409	100%	Critical
Greyhills High	420	100%	Very High
Moenkopi	216	100%	Very High

Significance of the RMTC

Northern Arizona University's Rural Multicultural Training Collaborative (RMTC) was a four-year, U.S. Department of Education funded collaboration in special education between NAU and local school districts in the Yuma and Tuba City areas. Its purpose was to train special education teachers to deliver high quality services to linguistically and culturally diverse students in rural areas. It was a field-based program, the classes were taken one at a time (consecutively not concurrently), the participants were a cohort group (students move through the program together), there were built-in support personnel (counselors and tutors), classroom practicums were concurrent with classes, each participant completed 19 hours in a semester, and local teacher assistants were able to continue to work since all classes start

after their work day ended.

RMTC was designed to meet the local and national need for certified special education professionals in rural areas by preparing a total of 60 baccalaureate special educators with dual certification in Special Education and Elementary Education for service in rural America. By focusing on collaborative and inclusive methods of delivering special education services, the RMTC program met the intent of the least restrictive environment clause of Individuals with Disabilities Education Act.

RMTC recognized the importance of distance education. Field-based professors, traveling guest lecturers, and Instructional Interactive Television (IITV) are all new ways to overcome the barriers rural students often face in accessing higher education. In addition, rural students, particularly under-represented groups often have difficulties juggling jobs, kids, classes, and so forth. RMTC addressed this difficulty by changing the nature of the classroom. Classes are taken by the same group of students, a cohort group. These classes were taken consecutively, rather than concurrently, so that each class can have each student's complete attention. The practicum was done concurrently so that all of the information covered in the classes could be directly applied and reinforced. With the addition of tutors and counselors each of the students had individual assistance before problems arose. Through the RMTC program it was found that through these non-traditional methods even students who had difficulties carrying 2 to 3 classes in the traditional manner were able to complete 19 credits per semester with an A or B average.

Each RMTC student received over 600 hours of classroom experience in rural areas. By living in a rural areas, RMTC students become aware first hand of the difficulties facing culturally/ linguistically diverse populations as well as techniques and skills to assist learning for these populations. RMTC also created a learning environment that encourages collaboration with administrators, teachers, students, parents, and the community to discuss the benefits and challenges of a culturally/linguistically diverse population and learning environment. In addition, the program worked with rural paraprofessionals who, owing to time, distance, and finances, were not able to attend the university to become certified. As participants in the RMTC program, they received all the classes necessary for certification in elementary and special education in their community.

Learner-centered Improvements

The RMTC program changed the traditional classroom and brought it to the learner's (student's) community. Participants in this non-traditional cohort group received an average GPA of 3.4, and there was a 100% retention rate of Native American students at Tuba City and a

93% retention rate of Hispanic students at Yuma. All RMTC participants were evaluated and compared to their counterparts on the traditional campus in traditional programs.

By using non-traditional teaching methods through distance field-based learning, the program worked to assist students who were working, taking classes, and often raising families. The RMTC program recruits from local school districts for teacher assistants who met the admission criteria and were interested in pursuing a teaching degree and certification. The program faculty then worked with the participants to produce detailed individualized programs of study. All classes were scheduled so as not to conflict with the work day. There were many supports available to participants. Tutors, counselors, and an on-site professor were available to the students throughout the semester. The RMTC program established agreements with local communities for other educational supports such as computer lab access and library access. In addition, the program was supported by local rural school districts. Teachers and administrators alike volunteered their time and support to assist in the development of teachers who would be of great assistance to their community. Over the course of four years, sixty students participated in the RMTC program by completing two academic year semesters and one full summer school session.

Training Teacher Assistants and Field-based Students

RMTC provided training in special education for ten instructional assistants in the Tuba City area during the two Fall semesters. Ten instructional assistants in the Yuma School Districts participated in the RMTC program during the two Spring semesters. Five NAU field-based students joined the instructional assistants each Fall and Spring semester. These students completed a special education practicum each morning, which entailed 20 hours a week in the local schools.

The five field-based students spent the Fall semester training on the Navajo reservation in Tuba City where they attended NAU classes with ten Native American participants who worked in schools on the reservation. During January, the five field-based students and the ten Yuma teacher assistants traveled to Cuernavaca, Mexico, where they experienced a Spanish language cultural immersion program. They attended Spanish classes at the Instituto Bilingue for 6 hours each day. In the afternoons and weekends they visited rural areas and participated in cultural activities. They lived with Mexican families and learn the language and local customs. The NAU field-based students then moved to Yuma for Spring semester and attended classes with ten Hispanic teacher assistant participants. The NAU field-based students had the unique experience of cultural immersion in both the Hispanic and Native American cultures and had opportunities to work with Hispanic and Native American students and families. The Native American and

Hispanic teacher assistants in the program were able to return to their positions and also attend all the NAU special education courses.

Cultural Immersion Activities

The RMTC program trained teachers for culturally/linguistically diverse populations. They became aware first-hand of the difficulties facing culturally and linguistically diverse populations as well as techniques and skills to assist learning for these populations. RMTC also creates a learning environment that encouraged collaboration with administrators, teachers, students, parents, and the community to discuss the benefits and challenges of a culturally/linguistically diverse population and learning environment.

The RMTC program worked with future teachers to promote awareness and knowledge of diverse cultures. The RMTC program was recognized by NAU for its significant contribution to the enhancement of cultural diversity and received the President's Award for Cultural Diversity for 1995-96. Some of the cultural activities that the RMTC students participated in were:

- A Native American weekend on the Navajo Reservation. Here RMTC students learn traditional Navajo ways of living (chopping wood, hauling water, caring for livestock, preparing earthovens, openfire cooking, hogan building, plant and animal studies, and traditional stories and games).
- A Havasupai Hike and Cultural Exchange. RMTC students hiked to the Havasupai Reservation, visited the teachers and students at the school and participated in a cultural exchange. The RMTC students learned Hopi, Navajo, and English stories, songs, nursery rhymes, and dances (taught by individuals in the RMTC program as well as individuals assisting the program) and shared them with the students in the Havasupai village. The students at the school then shared their stories, songs, and dances with the visiting RMTC students.
- A Spanish Immersion program for two weeks in Cuernavaca, Mexico. RMTC students lived with host families in Cuernavaca, attended classes in Spanish, visited and toured a host of landmarks, fairs, museums, and activities in Mexico.
- Participated in Migrant visits. RMTC students talked to the parents of migrant children to better understand their family dynamics as well as interacted with and learn about migrant lifestyles and culture.
- Visited a rural school in Algodones, Mexico. This interaction gave the RMTC students better insight on how schools

are operated in Mexico, different teaching techniques used in the classroom, and experience in another cultural setting.

- A one day visit to an orphanage in San Luis, Mexico. RMTC students each 'adopted' one child for the day and played and cared for them. The children knew the RMTC students were coming and anxiously awaited them at the gate of the orphanage. Feedback from the RMTC students showed that out of all the cultural exchanges, this one had the most impact on the RMTC students.

In addition to the scheduled cultural activities, the participants of the RMTC program planned potlucks twice a semester where the faculty from the local school districts are invited to share in food, fun, concerns, and other related issues. The 1994/95 RMTC group even created an RMTC cookbook. The students were also encouraged to attend fairs, festivals, and other cultural functions to learn as much as possible from the culture in which they lived.

The RMTC program increased students' knowledge of culturally/ linguistically diverse populations, which benefits **all** students. The Native American students commented that the program increased their knowledge of their own culture through introducing it to non-Native American students. Hispanic students who participate in the Spanish Immersion program benefited in the same way. (One student said she had known Spanish but had no idea of the "culture" her parents came from until she went to Mexico). Each student was provided the opportunity to experience and explore other cultures while deepening their knowledge of their own culture.

Summary

As of Fall 1996, 35 students had completed the RMTC program. Of the 35 students; 17 had graduated and were teaching, six were completing student teaching and twelve were finishing elementary education courses. All of these students became much more aware of and culturally sensitive to the special needs of rural and culturally/ linguistically diverse populations. From the student feedback the strengths most often mentioned about the program were:

1. Increased language and cultural knowledge.
2. Gaining a wide variety of skills for dealing with many types of culturally and linguistically different special education settings.
3. The partnership and collegiality with rural schools and RMTC students.
4. Direct classroom experience in a rural area.

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Challenges Involved in Creating and Maintaining a School/University Partnership

Jack C. Kern and Kim Mason

This paper describes the challenges involved in developing and maintaining a Master of Arts in Teaching program at the University of Arkansas. The program provides for a year-long public school teaching internship in K-12 physical education. The interns work with one lead teacher for a period of nine consecutive weeks before rotating to a different lead teacher at a different level.

Change is often accompanied by new challenges. The Master of Arts in Teaching (MAT) program at the University of Arkansas utilizes a drastically different approach in the preparation of future teachers. Students pursuing the MAT degree with certification in physical education embark on a year long teaching internship with the Rogers public schools. Guidance during the internship is provided by both experienced public school teachers and university professors. Creation of the public school/university partnership brought with it many challenges. Maintaining the partnership demands a high level of collaboration that results in continued challenges for all partners. Tackling these challenges is not a means to an end, but an ongoing process. As success is claimed in one area, new challenges always arise.

After the initial internship year in 1996-97, several areas were earmarked for improvement. These included intern-lead teacher communication, perceptions of the internship experience from the view of the intern and lead teacher, consistencies in the assessment of interns, and identification of the roles of the lead teachers and university professors.

Intern-Lead Teacher Communication

The physical education interns work with one lead teacher for a period of nine consecutive weeks before rotating to a different lead teacher at a different level (K-12 certification is provided). Thus, the intern works with four different lead teachers over the course of the year. While nine weeks seems long enough for ample communication time, both interns and lead teachers often reported that a lack of communication existed.

It is difficult to force people to communicate, and forced communication probably has limited value. However, two suggestions were made in an attempt to facilitate better interaction. First, lead teachers and interns were strongly encouraged to spend time together during the

lead teacher's planning period. During the initial year, the two often worked independently during this daily time frame. Second, informal intern performance assessments were scheduled to be done jointly by the intern and lead teacher every three weeks, with the possible participation of a university supervisor as well. It is hoped that this will facilitate not only discussion of teaching strategies and performance, but communication in general.

Perceptions of the Intern Experience

While no formal data was collected during the initial internship year, perceptions of the intern experience were often different from the viewpoints of the intern and lead teacher. In particular, lead teachers and interns often gave contrasting reports in two areas. First, the duties taken on by the intern and second, the duration of planning time spent preparing for lessons. In order to collect more formal data to determine whether or not a problem even exists, questionnaires and journal sheets were developed to more accurately determine the perceptions of the happenings during the internship experience. The questionnaires include open ended questions as well as questions that utilize a Likert-type scale for responses. Interns will be required to keep weekly journals outlining their duties and responsibilities and to record a progress-tracking entry from their lead teacher. Qualitative measures will also be used, including videotape, objective observation, and informal interviews.

Assessment Consistency of the Interns

During the initial year, intern teaching performance was primarily assessed by the lead teacher. This was a drastic change from the previous student teaching model, where assessment was handled by the university supervisor. This also created a consistency problem as interns were being assessed by four different lead teachers throughout the course of a year. Some lead teachers took the assessment very seriously and provided valuable feedback to the intern, while others appeared to put little thought into the evaluation. Still others were uncomfortable assessing intern performance and requested assistance from the university supervisor.

Committee recommendations to improve assessment consistency include informal appraisals done at three week intervals throughout the nine-week period. Whenever possible these would be performed jointly by all three primary partners—the intern, lead teacher, and university supervisor. It was also suggested that the final evaluation be done cooperatively by the lead teacher and university supervisor. The lead teacher would provide most of the information regarding the intern's performance, and the university supervisor would act as the recorder, assist with the process, and facilitate discussion if necessary. Because

the lead teacher works with the intern on a daily basis, it was considered vital that primary assessment responsibilities lie with the lead teacher.

Role Identification of Lead Teachers and Supervisors

An immediate challenge associated with the partnership was to eliminate the "old" method of student teaching supervision. No longer would a student teacher be under the sole tutelage of a cooperating teacher for six to nine weeks only to have a university supervisor stop in three times to assess their performance. The MAT program and accompanying partnership has attempted to shade these traditionally separate roles. University supervisors are housed in the public schools and make a minimum of one visit per week to each intern. They also attend public school inservice meetings and serve on various public school committees. Lead teachers have assisted with university curriculum development and have been an integral part of the MAT planning process from the very beginning.

However, shortly after the internship began, a certain level of discomfort was apparent regarding the roles of the lead teachers and university personnel. Because the university supervisor was in the schools on a much more regular basis, many lead teachers would tend to "back off" when the university supervisor was present. At the same time, university supervisors did not want to interfere by invading foreign territory. They also seemed hesitant to impose on the lead teacher by requesting them to do observation data or fill out assessment forms, even though their day to day observation of the intern would provide valuable feedback. Lead teachers expressed uncertainty as to how the intern should be gradually blended in to the classroom environment. They also expressed concern as to what their role should be when the intern takes on increased responsibilities. As expected, the "territory" problems passed with time, but a certain amount of doubt remained regarding the role each should play.

To clarify these roles, two major refinements were made for the upcoming year. First, a committee composed of university supervisors, public school lead teachers, and interns designed a handbook that provides basic internship guidelines and objective observation techniques. The internship guidelines help clarify the lead teacher's role throughout the internship period. Suggestions for gradually giving the intern additional responsibilities are provided, as well as suggestions for staying involved when the intern assumes a larger role. Several objective observation techniques are explained and blank forms are provided that can be used to assess the intern's teaching performance and give direct feedback on that performance.

Second, periodic assessments of the interns will be done jointly by the lead teacher and university supervisor. During the initial year, lead teachers were asked to assess the interns every three weeks by way of a

one page checklist. A more open ended form will be utilized and filled out every three weeks at a time set aside when the lead teacher and university supervisor can converse and collaboratively perform the assessment.

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olleges of Education are recognizing more and more that students who complete traditional on-campus teacher training programs with, at most, one practicum and one student teaching experience face major difficulties when they must handle thirty or more students all day, five days a week in their first teaching position. Northern Arizona University's Center for Excellence in Education has pioneered, along with other universities and colleges, a variety of partnerships with public and private schools to better prepare their students for the realities of the classroom. To further the interchange of ideas between Colleges of Education, NAU's Center for Excellence in Education hosted a "Connecting with Schools: The Rewards and Challenges of School Partnerships" Conference on October 15-17, 1997. This book is a selection of papers that were prepared for that conference. The fourteen papers in this collection describe sustained university-school partnerships designed to improve classroom instruction.

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