

Success in High-Need Schools Journal

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Theme: “Action Research to Improve Teaching and Learning in High-Need Schools”

Introduction

Improving teaching through research-based practice, commonly referred to as “action research,” has applications both in the college preparation of pre-service teachers and in teacher professional development in the K-12 classroom. This issue of the ACI Center *Journal for Success in High-Need Schools* focuses on action research undertaken at Associated Colleges of Illinois member colleges and universities, notably summer 2006 collaborative projects of arts and sciences and teacher education faculty members. The articles in this issue of the Journal demonstrate the broad applications of action research and its promise both in preparing highly qualified teachers for high-need schools and, consequently, in helping to close the achievement gap regarding the performance of students in these schools.

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Faculty Collaboration at Saint Xavier University: Involving Liberal Arts and Sciences Faculty in Teacher Preparation, by Michael Hardy, Maureen Spelman, Liang Zhao, Pamela Hofbauer, and Claudia Becker

Author Bios

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Abstract

During 2007, faculty members in the School of Education and the College of Arts and Sciences at Saint Xavier University joined forces to establish the Saint Xavier University Elementary Education Collaboration (EEC) Project. The project focused on improving content and pedagogical preparation in pre-service courses on elementary mathematics and foreign language methods. It did so by reviewing relevant research literature, creating master syllabi, and conducting a statistical analysis of candidates' performance on the Illinois Certification Testing System (ICTS) mathematics subtest in relation to their preparation in general education mathematics courses. EEC also developed a model for successful collaboration between faculty in the School of Education and the School of Arts and Sciences. This model should prove useful in future collaborations.

This article is adapted from a presentation given on Sept. 29, 2006 at the Arts and Sciences Colloquium, sponsored by the Center for High-Need Schools, Associated Colleges of Illinois.

Article

The curricula of teacher education programs should focus on content knowledge, pedagogical knowledge, and pedagogical content knowledge so that teacher-candidates can organize and present subject matter effectively, using instructional methods suited to the needs of diverse sets of learners (Shulman, 1986). These teacher education initiatives can make a significant difference in student achievement (Darling-Hammond, 2001). In response, policymakers have initiated a movement in higher education to produce highly qualified teachers for P-12 schools through partnerships between faculties of liberal arts departments and schools of education.

Under the new paradigm, faculty in the arts and sciences are charged with helping teacher-candidates build content knowledge to serve as a foundation for pedagogical and pedagogical content knowledge. Professional education coursework follows, immersing teacher-candidates in pedagogical knowledge. In turn, pedagogical content knowledge — a union of content and pedagogy that goes beyond knowledge of the subject matter — provides teacher-candidates with professional training in effective models of teaching and learning (National Council on Teaching and America's Future, 2003).

When an ongoing collaboration between the teacher education faculty and the arts and sciences faculty becomes essential to improving teacher education programs, the entire university becomes responsible for the collaborative approach. Teacher preparation programs must be driven by a coherent and research-based vision of instructional practices that support the preparation of candidates who know their subject areas deeply, understand how children learn, and use that knowledge to teach the diverse learners of the 21st century (*No Dream Denied: A Pledge to America's Children*, 2003).

The underlying goal of the Elementary Education Collaboration (EEC) Project was for faculty of the College of Arts and Sciences and the School of Education to collaborate on improving the academic and pedagogic preparation of pre-service elementary teachers. The collaboration focused on supporting teacher-candidates in elementary education to learn mathematical content knowledge and mathematical pedagogical knowledge. To ensure consistency between the syllabi and the goals of the State of Illinois' Association for Childhood Education International (ACEI) Team, EEC members reviewed or created master syllabi for recommended courses in mathematics and foreign language methods. In addition, project staff investigated the relationship between these candidates' performance in recommended mathematics courses and on the mathematics subtest of the Illinois Certification Testing System (ICTS) content area exam. Finally, a model of the collaborative process was developed to inform and facilitate successful collaborative endeavors between arts and sciences faculty and education faculty.

These activities emerged from a shared sense of commitment and responsibility for preparing teacher-candidates as well as from a shared belief that a strong content knowledge base enables teachers to design and implement engaging and effective learning experiences. Besides requiring a deep understanding of the benefits of data-driven instructional practices and faculty collaboration, the EEC required knowledge of the best practices in mathematics education, generally, and in ESL/Bilingual settings. To date, the project has undertaken the following:

- Statistical studies designed to examine the relationship between teacher-candidates' grades in general education mathematics courses and their scores on both the ICTS elementary/middle grades content area exam (No. 110), as a whole, and its mathematics subtest.
- A syllabi analysis of the assessment knowledge and skills necessary for the successful implementation of the Teacher Work Sample in the final clinical practice experience of the elementary education program as well as the alignment, revision, and/or creation of five related master syllabi.
- Compilation of an annotated bibliography focused on collaboration between College of Arts and Sciences and School of Education faculty members, best practices in preparing K-8 teacher-candidates to teach mathematics, and the foundational statistical knowledge and skills needed to implement data-driven instructional decisions.
- Preparation of a curriculum proposal for changes based on the data from the statistical studies, the syllabi alignment with Teacher Work Sample methodology, and the review of related literature.

Best Practices in Mathematics Education

In mathematics education, constructivism is one of the most popular theories of learning. The primary tenets of constructivism are that learners actively and intentionally construct knowledge out of their experiences to make sense of those experiences, and that learners use prior experiences to interpret or give meaning to current experiences (von Glasersfeld, 1991). Another popular epistemological theory is "situated cognition," which asserts that knowledge is the ability to participate in a culture. Supposedly, this ability is developed through participation with more advanced members of the culture, and knowledge is inextricably associated with the specific context in which it is learned and used (Putnam and Borko, 2000). Both of these leading theories of learning assume that knowledge is constructed or abstracted from experience via reflection on that experience. Moreover, both theories maintain that learning and the mental constructs that make up knowledge are defined by social interactions and constraints, as well as the context in which learning occurs and knowledge is applied.

Several potential implications for mathematics instruction are derived from the belief that knowledge is constructed actively, often via social interactions constrained by prior experience and culture, and linked to the context in which it is constructed. If learners need to construct knowledge actively in order to learn effectively, teachers should strive to get students actively involved in instructional activities. Moreover, if reflection and social interaction are key components of the learning process, teachers also should provide their students with numerous opportunities to interact and reflect within a community of learners. Similarly, if new experiences are interpreted in terms of prior experience, and if knowledge is linked to the context in which it is learned and used, teachers should strive to relate new concepts to what students already know, to their lives away from school, and to authentic real-world situations.

Accordingly, the National Council of Teachers of Mathematics (NCTM, 1989, 2000) endorsed the use of a variety of instructional strategies that actively engage students in the learning process and afford them ample opportunity for social interaction, reflection, and communication. In particular, NCTM (1989, 2000) supports the use of instructional strategies and tools, such as the use of manipulatives and technology, problem-centered learning, questioning, cooperative learning, interactive lecture, and establishing links between realistic contexts and mathematical concepts and procedures.

The use of a variety of methods also caters to the needs and strengths of multiple learning styles and helps pupils build better understanding of concepts and multiple perspectives for giving meaning to them. Questioning, for example, can be used to orient pupils' thinking and to get them to articulate their thinking. Such articulation gives the teacher insight into a student's understanding and allows that student to refine that understanding through the reflection that precedes being able to communicate his or her ideas. In addition, instructors can scaffold students' capacity to understand and apply solution strategies that they might not have independently generated by articulating their own thinking or by modeling Think-Aloud strategies, (Vygotsky, 1978; Wertsch, 1985). Furthermore, critical thinking skills that are developed through problem solving and questioning empower students to be independent, life-long learners.

The use of a diverse set of instructional strategies that include establishing links to other topics and contexts also can enhance students' retention of course content as well as their appreciation of the discipline and motivation to learn about it (Lutsky, 1986; NCTM, 1989). Finally, the use of a myriad of instructional and assessment methods can promote deeper understanding and retention of content, as well as appreciation for and motivation to learn about the discipline, thus better meeting the needs of diverse sets of learners (Beyer, 1993; Chambers, 1993; Lutsky, 1986; NCTM, 1989, 2002).

Best Practices in Teaching Mathematics in ESL/Bilingual Education

It is important that mathematics education be an essential component of ESL studies and bilingual programs as well as ESL/bilingual teacher training programs. The use of mathematics is an authentic real-world activity that reflects the new culture for ESL/bilingual students (Zaslavsky, 2003a; Zaslavsky, 2003b; Arrowood, 2004). Moreover, a number of everyday mathematical systems in the United States are quite different from those in the students' home countries and cultures (Gutstein, 2005). For instance, an English Language Learner (ELL) must learn to understand and use the American Standard Measurement (ASM) system. The ASM system is very different from the metric system familiar to many ELLs. While the concepts and values may bear some similarities, the ELL must make the connection between the new language being learned and used and the practical use of mathematics in the culture in which he or she is learning to participate. Students need to become comfortable with a number of terms, expressions, phrases, and idioms used in that culture. Furthermore, to solve mathematical word problems, it is necessary to translate English terms and sentences into mathematical symbols, many of which are cross-cultural.

This process of translating English terms and sentences into mathematical symbols requires a great deal of time and practice in interactive and meaningful contexts. Just as elementary education teacher-candidates need to be knowledgeable of a variety of instructional strategies, ESL/bilingual candidates need to learn strategies that support the learning of a foreign language. One approach for doing so is to teach mathematics through the use of graphs, diagrams, models, experiments, manipulatives, and technology. ELLs, or for that matter learners of any foreign language, can benefit from relating the language they are learning to a familiar mathematical context. Thus, competency in the new language can be enhanced via best practices such as looking for patterns, relating to everyday experiences or realistic contexts, and communicating in English (the new language) about mathematical concepts and procedures, as well as through performance-based assessments, such as the creation of graphic representations of mathematical concepts and procedures, all of which serve to scaffold students' learning (St. Clair, J., 1993; Curcio, Schwartz, and Brown, 1996). Similarly, it is important for ESL/Bilingual methods instructors to have in mind and introduce in a relevant context the major terms that students will need to understand a particular math activity or context (Tamamaki, 1993). Finally, because much of mathematics is cross-cultural, instruction in mathematics in the first language is an efficient and culturally appropriate way of developing mathematical literacy for language minority students while they are learning English (a new language) (Cummins, 1992).

Data-Driven Instruction

Throughout the past 20 years, there has been an increased emphasis on using assessment methods that are

appropriate for gaining insight into students' understanding, skills, and performance relevant to the instructional methods, activities, goals, and objectives. This in turn has led to calls for the use of a variety of assessment techniques that also provide information teachers can use to inform their instructional decisions, serving as the basis for data-driven instruction (Beyer, 1993; Chambers, 1993; Herman, 1997; NCTM, 1989, 2002).

The premise underlying data-driven instruction is that instructional decisions should be both well-informed and justified in light of students' needs. Insight into what those needs are should be ascertained through careful analysis of students' performance on tasks appropriate to the relevant instructional goals. In addition to providing teachers with insight into students' understanding and skill, assessment should inform ensuing instruction, and thereby promote conceptual understanding and the ability to apply concepts and procedures. Therefore, one of the fundamental purposes of assessment is to provide direction and justification for teachers' pedagogical decisions through careful analysis of and reflection on assessment data. Accordingly, assessment is an integral component of the instructional process, as well as a tool for evaluating students' performance and understanding (Beyer, 1993; Chambers, 1993; Herman, 1997; NCTM, 1989, 2002).

Another crucial aspect of data-driven instruction is the congruence between assessment and instructional strategies, goals, and objectives. Just as no single teaching method will meet the needs of every learner for every objective in every context, no single form of assessment is appropriate for every objective and activity. Hence, it is vital that educators select forms of assessment that are compatible with instructional goals and practices. The need for such alignment necessitates the use of varied assessment strategies that include but are not limited to observations, projects, various forms for communicating ideas, and problem-solving techniques as well as more traditional tests and quizzes. Moreover, the use of a diverse set of assessment and instructional strategies is likely to enhance the understanding and retention of concepts and procedures, and the appreciation of and motivation to learn about the discipline. Thus, employing a myriad of teaching and assessment strategies ultimately allows educators to better meet the needs of diverse sets of learners (Beyer, 1993; Chambers, 1993; NCTM, 1989, 2002).

Statistical Analysis

As previously noted, our collaboration focused on supporting elementary education teacher-candidates in the learning of both mathematical content and pedagogical knowledge. One of the ways in which EEC staff explored this issue was to investigate the relationship between elementary education candidates' performance in recommended mathematics courses and their performance on the mathematics subtest of the ICTS content area exam. In general, the school's candidates performed well on the both the content area exam as a whole and the mathematics subtest. The candidates on whom data were collected were all elementary education majors who took the content area exam one or more times between March 2005 and June 2006 ($n = 190$ students and their total number of test attempts was 240). The mean number of test attempts was 1.26 with a standard deviation of 0.64. In all, 70% of all content area scores and 80% of all mathematics sub scores were passing scores. The mean content area exam score was 245.16 with a standard deviation of 17.35, and the mean mathematics sub score was 250.69 with a standard deviation of 25.26. The following questions were investigated to further explore the relationship between performance in Foundations I and II and performance on both the content area exam and its mathematics subtest.

- Does a significant relationship exist between the students' mean mathematics sub scores across any of the number of Foundations I and II courses taken, the number of Foundations I and II transferred to SXU, or students' grade point averages for Foundations I and II ($\alpha = .05$)?
- Does a significant relationship exist between the students' mean content area exam scores across any of the number of Foundations I and II taken, the number of Foundations I and II transferred to SXU, or student grade point averages for Foundations I and II ($\alpha = .05$)?

- Does a significant difference exist in the frequency of a passing score on either the content area exam or the mathematics subtest across the number of Foundations I and II taken or the number of Foundations I and II transferred to SXU ($\alpha = .05$)?
- Is there a significant difference in the mean of the mean mathematics sub scores or the mean of the mean content area exam scores across any of the number of Foundations I and II taken, the number of Foundations I and II transferred to SXU, or students' grade point averages for Foundations I and II ($\alpha = .05$)?

Results indicated that there was a significant correlation between candidates' mean mathematics sub scores and GPA for Foundations I and II. The r-value or correlation coefficient was .466 with a p-value < 0.001 . The corresponding value for r^2 was .217, which indicates that the candidates' GPA in Foundations I and II accounted for 21.7% of the variation in their mean mathematics sub scores. Similarly, there was a significant correlation between students' mean overall content area exam score and GPA in Foundations I and II. In this case, the r-value was .318, $p < 0.001$ again held true, and students' GPA in Foundations I and II accounted for 10.1% of the variation in their mean content area exam scores. But, for those who took neither course, no significant relationship was found to exist between students' GPA in their mathematics courses and their mean performance on the content area exam as a whole or their mean performance on the mathematics subtest. These results imply that, while performance in Foundations I and II influenced performance on the content area exam and its mathematics subtest, the other combinations of mathematics courses that the pre-service teachers completed did not. However, these results must be interpreted with caution because differences in content, level of difficulty, instructor, and many other variables could influence students' GPA and therefore the potential correlation between GPA and test performance.

In addition, no significant relationships existed between either candidates' mean content exam scores or mean mathematics sub scores and the number of Foundations I and II courses passed or transferred to SXU, when only data for candidates that took at least one of Foundations I and II were considered. Similarly, chi-square tests revealed no significant differences in the frequencies of passing content area exam scores or passing mathematics sub scores across either the number of Foundations I and II courses taken or the number transferred to SXU. These results imply that the percentage of students that eventually pass the content area exam and the mathematics subtest are similar regardless of how many Foundations I and II courses are taken or transferred. This is not necessarily undesirable because we suspect that many of those who take neither Foundations I and II may do so because they are quite talented and want to take what they believe to be more challenging courses. However, this is speculation and needs to be verified via interviews and transcript analysis. If this speculation were to be verified, the pass rates on the content exam and mathematics subtests for the allegedly more talented students and those who take Foundations I and II should be similar.

On a different front, an ANOVA test did not reveal significant differences in the means of the mean mathematics sub scores across the number of Foundations I and II taken. Likewise, an ANOVA test did not reveal significant differences in the means of the mean mathematics sub scores across the number of Foundations I and II transferred to SXU. Similar results held for the means of the mean content area scores across both the number of Foundations I and II taken and the number transferred to SXU. Again, this may indicate that, in general, those who are taking Foundations I and II at any institution are performing as well on both the mathematics sub scores and the exam as a whole as those who take neither of the courses, possibly due to a desire to take more challenging mathematics classes.

However, an ANOVA test indicated that significant differences existed in both the means of the mean mathematics sub scores and the means of the mean content area exams across students' grade point averages for Foundations I and II ($p < 0.001$ in both cases). The relevant grade point categories were 2.0, 2.5, 3.0, 3.5, 4.0 and a code of * was assigned to those who took neither Foundations I nor Foundations II. A Tukey test was used to determine which GPA categories had means that were significantly different. Results indicated that students with a GPA in Foundations I and II of 3.0 or

better and those who took neither course significantly outperformed students in both the 2.0 and 2.5 GPA categories. This result is not particularly surprising. However, it does offer Saint Xavier University a method of identifying elementary education candidates who may benefit from participation in the university's newly established tutorial program intended to help students prepare for the content area test. Accordingly, once a candidate earns a grade in Foundations I or II that is less than a B, the School of Education may want to send that student a flier concerning the school's test preparation program. Furthermore, the results provide additional evidence that those candidates who are earning a GPA of 3.0 or better in Foundations I and II are performing as well as on both the content exam as a whole and the mathematics subtest as their counterparts who take neither Foundations I nor Foundations II, possibly due to a perception that the courses are not challenging or useful. However, potential reasons for not taking Foundations I and II need to be verified through interviews and transcript analysis.

Faculty Collaboration

Our ACI -sponsored collaboration between Saint Xavier University faculty members from the School of Arts and Sciences and the School of Education focused on supporting elementary education teacher-candidates in the development of both their mathematical content and pedagogical knowledge. In particular, this collaboration required an understanding of the challenges and benefits of faculty collaboration, best practices in mathematics education, best practices in teaching mathematics in an ESL or a bilingual environment, and the importance of data-driven instruction. Using these four lenses, the participants collaborated in three major undertakings. First, we collaborated in improving the academic and pedagogic preparation of pre-service elementary teachers. To attain this goal, we investigated the relationship between elementary education candidates' performance in recommended mathematics courses and their performance on both the mathematics subtest of the Illinois Certification Testing System (ICTS) content area exam and the test as a whole.

Team members also reviewed, revised, and created master syllabi for recommended mathematics and foreign language methods courses for elementary teachers in an effort to ensure consistency between those syllabi and the goals of the State of Illinois and the Association for Childhood Education International (ACEI). A qualitative analysis of master syllabi indicated that the mathematics and foreign language methods courses were essentially compatible with the goals of the State of Illinois and ACEI. The five master syllabi for recommended mathematics content and methods courses and bilingual methods courses that have been put in place through the EEC Project will help ensure that such compatibility is maintained. In addition, these same five master syllabi were reviewed and revised in accordance with the Teacher Work Sample Methodology processes, which provide the cohesive thread running throughout the elementary education program scope and sequence. The Teacher Work Sample is an assignment through which Saint Xavier's pre-service elementary education candidates demonstrate an ability to plan and implement instruction that positively impacts their students' learning.

The final piece of the Saint Xavier University EEC Project involves developing a collaborative model to inform and facilitate successful collaborative endeavors between Arts and Sciences and Education faculties in similar institutions of higher education. The design of this particular collaboration model is evolving as the team members continue to work on the major components of the EEC Project. The project team members began reflecting upon their collaborative experiences by slotting them into the logic model graphic organizer in Figure 1. Subsequent reflections on the team's work sessions produced the concept map in Figure 2, which details collaborative strengths noted by participants in the EEC Project. Analysis of the map reveals key components of a successful collaboration between Education and Arts and Sciences faculties, including mutual respect, a shared recognition of the need to prepare pre-service teachers adequately, and a shared responsibility to do so, a sharing of information (e.g., about program and candidate needs in teacher preparation), discourse about such issues, a forum for such discourse, reflection on issues raised, a willingness to both lead and be led, and allowing goals and needs to drive the choice of solutions.

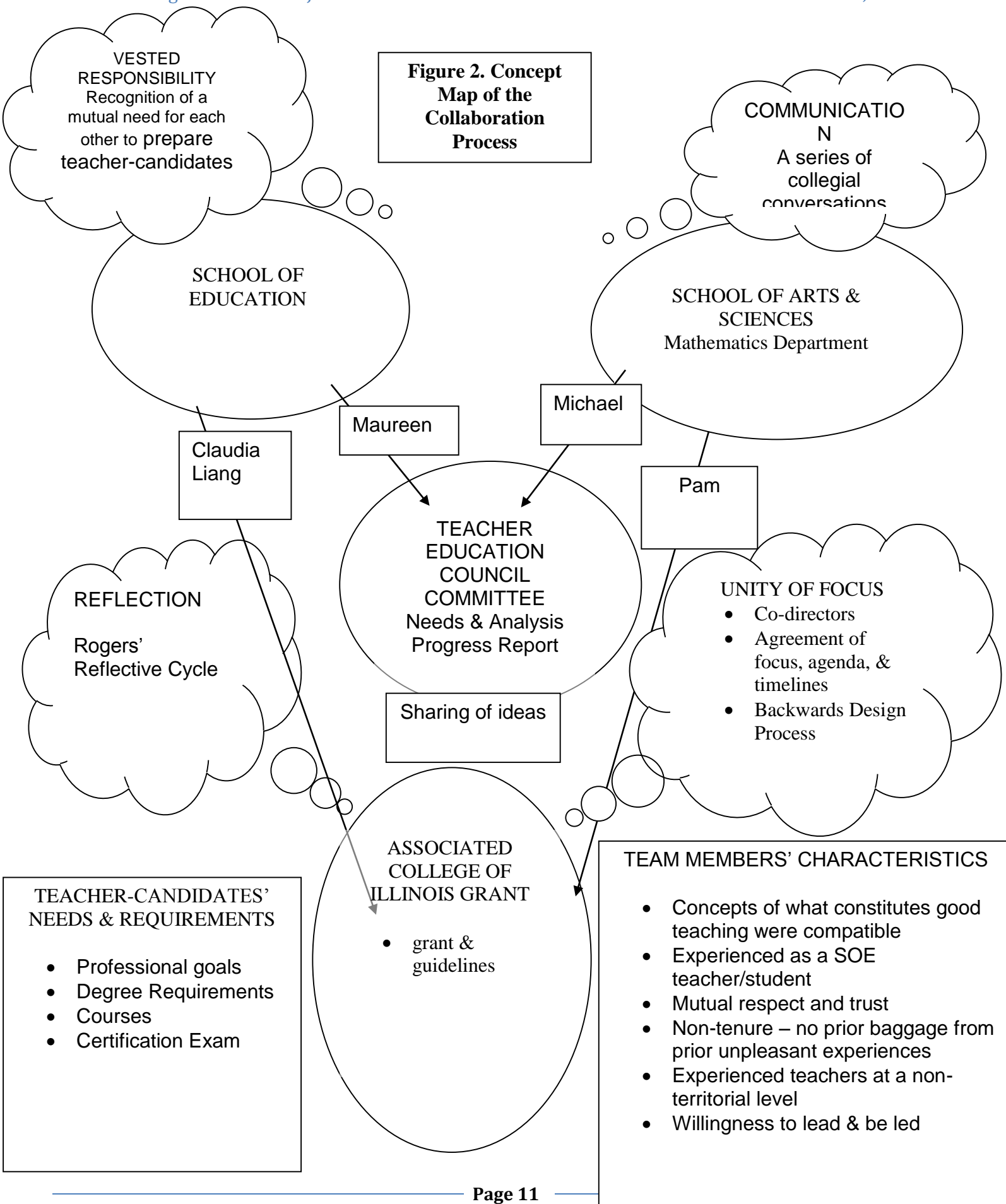
Accordingly, if faculty from different schools or colleges within a university desire to collaboratively make alterations to a joint program, placing a premium on these key components may enhance the productivity of their efforts.

Figure 1. Logic Model of Faculty Collaboration: Arts and Sciences and School of Education working together in teacher preparation

Logic Model
Faculty Collaboration: Arts and Sciences and School of Education working together in teacher preparation

RESOURCES	ACTIVITIES	OUTPUTS	OUTCOMES	IMPACT
<i>In order to accomplish our objectives we will need the following resources:</i>	<i>In order accomplish our objectives we will conduct the following activities:</i>	<i>We expect that once accomplished these activities will produce the following results:</i>	<i>We expect that if accomplished these activities will lead to the following benefits for faculty and teacher-candidates:</i>	<i>We expect that if these benefits are achieved the following changes will occur within our teacher preparation program:</i>
Co-Directors: - Michael Hardy, Ph.D. Mathematics and Computer Sciences - Maureen Spelman, Ed. D. School of Education Faculty representation from School of Education: - Claudia Becker, Ph. D. - Liang Zhao, Ph. D. Faculty representation from Arts and Sciences: - Pamela Hofbauer, Ph. D. Funding: - ACI for summer research grant	- Correlation study to examine the relationship between teacher-candidates' grades in the general education mathematics courses and mathematics subareas scores on the ICTS Content area Exam # 110 - Conduct an analysis of the assessment knowledge and skills necessary for successful implementation of the Teacher Work Sample. - Compile a literature review focused on: collaboration between Arts and Science and School of Education faculties, best practice in preparing K - 8 teacher-candidates to teach mathematics, and statistical knowledge and skills needed by K-8 teacher-candidates to scaffold assessment driven instructional decisions.	- Conference to discuss findings of the correlation study and to brainstorm recommendations to strengthen teacher-candidate performance on the mathematics subarea of the ICTS Content area Exam #110, Elementary/Middle Grades. - Collaborate to review and align the master syllabi for recommended and required content and pedagogical mathematics courses with the ACEI mathematics content area components/elements and the statistical knowledge and skills necessary for successful implementation of the Teacher Work Sample.	- Produce annotated bibliography and project recommendations to share with SXU faculty members. - Draft curriculum recommendations based on data from the correlation study, analysis of necessary knowledge and skills for the Teacher Work Sample, and the literature review. - Prepare joint presentation for the September 29 <i>Center Arts and Sciences Colloquium</i> .	- It is the hope of the project participants that this collaboration will serve as a starting point for establishing similar partnerships between the faculty in the School of Education and faculty in a wide range of specialties in the School of Arts and Sciences. - Teacher-candidates exiting the SXU Elementary Education Program will be better equipped to understand and approach both the content they will teach and the methods required to scaffold learning for all students.

Figure 2. Concept Map of the Collaboration Process



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Arts and Science and Teacher Education Faculty Collaborations: at Lake Forest College, by Dawn Abt-Perkins, Shelley Sherman, Steve Galovich, and Elizabeth W. Fischer

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Abstract

During the past two years, teacher educators and liberal arts faculty in other disciplines at Lake Forest College have worked together to prepare pre-service teachers for high need schools and to retain newly hired teachers in these same schools. These collaborations have resulted in a variety of successful endeavors that have provided all participants with insight into the ways that productive relationships across the liberal arts can be developed. The literature about the connections between content knowledge and pedagogy, as well as reports on collaborations in other institutions, have informed our work and helped us move toward increasingly productive collaborative relationships in our own programs. We have also created the Linking Learning Communities project, a collaborative undertaking with teachers and administrators in the Waukegan public schools.

Introduction

Several questions regarding the nature of these collaborations have evolved over time as our initiatives have been developed and projects have been actualized:

What kinds of experiences can be framed for preservice teachers that enable them to draw simultaneously from the expertise of both teacher educators and faculty from other disciplines?

This question is one that we have struggled with together as we have redesigned the pre-service program to better prepare our teacher candidates for success in high need schools. We have been engaged in extensive dialogue amongst ourselves to determine when it is most beneficial and appropriate for particular faculty members (e.g., teacher educators, history faculty, science faculty, math faculty) to be involved in teacher preparation and induction activities. At times, we have determined that working with history faculty made sense as we helped teacher candidates understand the historical context of the Waukegan community, for example, and supported their use of

the community as a resource for teaching. On the other hand, we decided that collaboration with science faculty could strengthen the focus we were seeking when promoting critical thinking skills and the inquiry process. As we continue to move forward, we will sustain the dialogue that has been invaluable in shaping our thoughts about collaboration across the liberal arts. In addition, we will continue to draw from the literature to illuminate new possibilities.

How can the work in high need schools energize liberal arts faculty who may not ordinarily participate in teacher preparation?

We see increased interest across campus from faculty who wish to make a difference in the lives of students from high need schools. Some understand how culturally relevant teaching in schools can lead to higher levels of engagement and achievement. Others see the possibilities of bringing students from under-represented groups into particular fields, such as math and science, which are not highly visible in communities such as Waukegan. The notion that the preparation of teachers is the responsibility of all university faculty, not only teacher educators, is one that is discussed in the literature. But the possibility of making a real difference in the lives of K-12 students, especially those in high need schools, can provide even greater incentive for this responsibility to be taken seriously by all liberal arts faculty.

How can teacher educators and faculty from other liberal arts disciplines benefit from collaborations with one another?

We know from the literature and are learning from experience that the pedagogical expertise of teacher educators and the content area knowledge of other liberal arts faculty must not exist in isolation from one other. Our faculty members across disciplines already have benefited a great deal from observing each other teach and from teaching together in pre-service seminars and in induction institutes. We are all looking more closely at our teaching and are developing clearer understandings of ways to integrate pedagogy and content knowledge in teacher preparation. Moreover, we continue to search for more intensive collaborations that create a balance-- helping new teachers plan instruction that always situates methodology within the context of the content to be taught and, simultaneously, locate content within a teaching framework that makes it most accessible to students.

Coleman, D., & DeBay, M. (2000). Weaving teacher education into the fabric of a liberal arts education. *Kappa Delta Pi Record*, 36(3), 116-120.

The preparation of teachers at Bennington College is the responsibility of faculty across disciplines. Such a model provides inspiration for collaborations at other institutions, especially at similar small liberal arts institutions such as Lake Forest College. The program at Bennington attempts to move beyond the constraints of the departmental model. Moreover, all Bennington students are able to enroll in courses designed for teacher candidates and students preparing for elementary and high school teaching attend classes together. To be sure, this integrated model is facilitated by the structure of the college; there is no separation of disciplines into academic departments. In addition, faculty who supervise student teachers are usually faculty from a variety of disciplines, providing a focus on pedagogical content knowledge for specific subject matter. Furthermore, the absence of academic departments makes the integration of teacher education seamless and the status of teacher candidates comparable to students in all academic concentrations.

Although this piece does not feature clear models for faculty collaboration, it supports an integrated approach to teacher education that can help build the framework for such collaborations. Such an approach holds promise for the preparation of teachers in high need schools because it breaks down barriers among disciplines and demonstrates how the resources of the institution can collectively prepare teachers. Teaching in high need schools can be well supported by a collective approach to teacher preparation; by drawing simultaneously from the expertise of content area specialists and teacher educators, innovative approaches for instructional planning and implementation may be

created that directly address the challenges of teaching in high need schools and build on the strengths of specific community contexts.

Cochran-Smith, M. (2006). Ten promising trends (and three big worries). *Educational Leadership*, 63(6), 20-25.

Among ten promising trends for teacher preparation reform, Cochran-Smith suggests viewing teacher preparation as the responsibility of the entire university. This highly respected and highly visible teacher educator cites resolutions by several organizations, including the American Association of State Colleges and Universities, the American Council on Education, and the Association of American Universities, which encourage university presidents to encourage collective responsibility for teacher education, moving it outside the exclusive purview of colleges and departments of education. In addition, Cochran-Smith cites three concerns that threaten teacher education in the future: using test scores to define teacher quality; viewing teachers as saviors; and treating the purpose of education as supplying the labor force.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57(1), 1-22.

Although familiar to most teacher educators, this seminal work on the relationship between pedagogy and content knowledge continues to anchor the dialogue about the knowledge base for teaching. Shulman identifies four sources of the knowledge base for teaching: scholarship in content disciplines; materials and settings; research on schooling, human learning, and social context; and wisdom of practice. Almost twenty years after it was written, this scholarship can guide the collaboration between teacher educators and faculty across the liberal arts. It may provide further guidance as a roadmap to examine pedagogical content knowledge within the context of teacher preparation for high need schools. How can teacher educators and their liberal arts colleagues develop a knowledge base that utilizes Shulman's paradigm to meet the emerging challenges of teacher preparation in today's society? Shulman's "wisdom of practice" may be particularly relevant in this regard, as Shulman suggests that the principles of good practice are highly contextualized.

Trubowitz, S. (2004). The marriage of liberal arts departments and schools of education. *Educational Horizons*, 82(2), 114-118.

Although it seems clear that a marriage of liberal arts departments and schools of education is desirable, there are several challenges to achieving such a goal. These challenges include a lack of understanding by professors about the variability of K-12 school contexts, a narrow understanding of learning theory, and negative assumptions that professors from both communities hold about each other. For example, many professors assume that a primary mode of instruction at the university level, lecturing, is also appropriate for students in K-12 settings. These challenges must be overcome so that productive relationships can be developed that can both enhance teacher preparation and improve schools. In addition, the interactions between public school faculty and university professors must be examined so that all participants can come to value the multiple contributions that can lead to school improvement.

We have found that developing common ground between education faculty and faculty in other liberal arts departments can be established when both parties identify goals and develop programs for teacher candidates and new teachers together and implement these programs as equal partners. Teacher candidates, too, must begin to see faculty outside education departments as full partners in the process of teacher preparation. The image of a united faculty who bring multiple perspectives to construct a common purpose is one that can further strengthen the integrated nature of teacher education. This article, which suggests that school improvement can be achieved through such collaboration, has particular relevance for the work we are doing in high need schools. To be sure, the collective

talent and energy of faculty from many disciplines opens new possibilities for innovative practices and broader opportunities for school reform.

Preparing Math Teachers for High Needs Schools

Steve Galovich, late Professor of Mathematics

Lake Forest College

The following bibliography was constructed to mirror the evolution of my thinking about how best to prepare teachers to teach math and how to teach math to students in high needs school environments. I read this material to further my thinking and reflections as I redesigned a Mathematics for Elementary Teachers course that I am teaching in the Spring 2007, as well as to support the work that I am engaged in with new teachers of mathematics in Waukegan Public Schools in the Linking Learning Communities: New Teacher Leadership Project. I preface this annotated bibliography with three key questions that I am exploring and my current thinking about these questions.

What is the relationship between teaching math teachers and racial equity?

I feel that the mathematical preparation of teachers—be they in elementary, middle, or secondary schools—is of vital importance to the success of students in mathematics. The better educated teachers are in mathematics, the more likely it is they will convey the excitement, importance, and subject matter of mathematics to their students, and the more likely it will be, therefore, that students will develop, while they are young, positive attitudes toward mathematics. The importance of having competent teachers of mathematics in elementary and middle schools was recently underscored by Pamela Clark Kenschaft, professor of mathematics at Monclair State University in New Jersey. Professor Kenschaft, who has extensive experience with professional development projects for teachers, writes in the February 2005 issue of the *Notices of the American Mathematical Society*: “I strongly believe that the most crucial step for promoting racial equality in this country is to educate all elementary teachers mathematically.” Now this claim is certainly debatable and might strike many readers as an overstatement or even as hyperbole. Nonetheless, in the article she makes a case for the beneficial influence that a mathematically able teacher of young children can have on the mathematical performance of students.

What should the learning outcomes be for math instruction in high needs schools?

During the past several months, I have spent time becoming better acquainted with the problems involved in the education of prospective and practicing mathematics teachers, at both the elementary and secondary levels. Any mathematician or mathematics educator who works with pre-service or in-service teachers must have a perspective on the nature of mathematics, its history, and its place within other disciplines, as well as a sense of the challenges that teachers encounter daily in the classroom. In other words: What mathematics should you teach? How should you teach it? What do you want students to learn from the study of mathematics? Of course, volumes have been written on these topics and questions, and there are several distinct and valid approaches to address them. The notorious battles in California and elsewhere in the so-called “math wars” underscore the passion that many have concerning the teaching of mathematics.

What are the features of high quality math instruction in high needs schools?

Although not all the items referenced directly focus on the teaching of mathematics in high-need schools, they all speak to that challenge, since they focus on how mathematics might best be taught at any level and to any student. These approaches include the teaching of basic algorithmic skills, along with problem solving and other critical thinking skills. The quantitative literacy movement, with its emphasis on placing mathematics in context rather than in a general setting, also provides a possible direction for the teaching of mathematics at both the pre-college and college levels. With its emphasis on how mathematics can be used widely in everyday life, the latter can help to bridge the gap between classroom mathematics and the real world.

Knuth, E., Secondary School Mathematics Teachers Conceptions of Proof, *Journal for Research in Mathematics Education*, 2002, 33, 379-405. This study of the conceptions of the mathematical proof by 16 in-service secondary school mathematics teachers provides clear insight into the limited view of the nature and value of proof held by these teachers and presumably by practicing teachers in general. College mathematicians who participate in the training of future mathematics teachers would be wise to stress the role that proofs play in communicating mathematics, discovering new mathematics, as well as verifying the validity of mathematical statements.

Schoen, H. (ed.), *Teaching Mathematics Through Problem Solving, Grades 6-12*. This collection of essays published by the National Center for Teaching Mathematics (NCTM) discusses the importance, methods, and value of teaching problem solving skills to students of all abilities and background at all levels of the curriculum. Included are articles on the teaching of problem solving to students with poor mathematical background and preparations and students from low socioeconomic status.

Schoenfeld, A., "The Math Wars," *Educational Policy*, 2004, 18, 253-286. Schoenfeld describes the long-running and often vitriolic debate on how mathematics should be taught in the grades K-12 and how the issues in this controversy affect the everyday work of the classroom teacher. This paper is just one of many excellent pieces by Schoenfeld on mathematical cognition and metacognition.

Steen, L. (ed.), *Mathematics and Democracy, The Case for Quantitative Literacy*. This book stresses the importance of quantitative literacy in the school and college curriculum and in the lives of citizens of this country. The kinds of mathematical skills described in the book—ability to work with large numbers, to analyze data, to reason logically, to understand statistical analyses—are not sufficiently emphasized in the formal mathematics curriculum. Quantitative reasoning is mathematics in context, rather than mathematics in a general setting, and hence the teaching of quantitative reasoning requires a pedagogical approach that differs from that usually followed in the classroom.

Wiles, Peter, Coordinating Mathematical and Pedagogical Content in Preservice Teacher Education, 2001, unpublished Ph.D dissertation, University of Wisconsin Madison. This doctoral thesis addresses the question of how best to structure a mathematics course required of preservice elementary school teachers. The author asserts that it is necessary for such prospective teachers to know more than the mathematical content. Wiles asserts that knowing how children think about the mathematics they are learning is equally important to the teacher. Hence, preservice mathematics education should address the issue of how students learn as well as what they learn.

Evolving Thoughts about Teaching Science

**Elizabeth W. Fischer, Senior Lecturer in Chemistry
Lake Forest College**

My journey toward research on the teaching of science in high-need schools is circuitous at best. It started with my work with the Education Department at Lake Forest College and has included serving as the Chemistry Department representative to the Education Advisory Committee and the author of the Chemistry Department's part of the accreditation document for the State of Illinois. In addition, I observed when a chemistry student teacher, as part of her student teaching experience, was asked to become a participant in the Linking Learning Communities (LLC) project.

Each of these experiences has built upon the other and allowed me an extraordinary opportunity to consider the issues facing teachers teaching science in high needs schools. As I began to work with LLC, I met staff members at the Associated Colleges of Illinois. I was asked to help work on a grant proposal to develop improved learning processes for girls and minorities studying science in high-need school. My exploration of the literature for the proposal and for LLC allowed me to begin to identify some widely recognized good practices.

First Steps: Researching the Literature

- The Urban Institute. (2001). *Summary Report on the Impact Study of the National Science Foundation's Program for Women and Girls*. NSF 01-27.
- National Science Foundation (NSF). (2002). *NSF's Program for Gender Equity in Science, Technology, Engineering and Mathematics: A Brief Retrospective 1993-2001*. NSF 02-107.
- National Science Foundation (NSF). (2003). *New Formulas for America's Workforce, Girls in Science and Engineering*. NSF03-207.

In articles summarizing the NSF's work in the Program for Gender Equity in Science, Technology, Engineering, and Mathematics, successful program components to attract and retain girls in science were identified. Among these are mentoring, activities outside the classroom, summer science programs, revised curricula, professional development for teachers, and activities for parents. In addition, using role models as part of a mentoring program is very important. This allows scientists from the community and businesses to become more engaged in science education. All of these sources include examples of successful programs.

Atwater, M., (2000). Equity for Black Americans in Precollege Science. *Science Education*. 84.

In this article Atwater states that to reach students of differing socio-economic and ethnic backgrounds, cultural differences must be acknowledged and teaching methods must be inclusive. Teachers need to be prepared to be multicultural science educators. She suggests that these ideas must be woven into pre-service programs and professional development programs for classroom teachers.

Barton, A. (2001). Science Education in Urban settings: Seeking New Ways of Praxis through Critical Ethnography. *Journal of Research in Science Teaching*, 38, 899-917.

Barton's studies underscore the importance of acknowledging culture differences in classroom instruction. "Science for all" is a well-known phrase for efforts to bring equity into science education for girls and minorities. Educating all students needs to include critical evaluation of bias in such areas as language use, student background, and education of parents regarding science, i.e., make the classroom welcoming for all students and their differing learning styles. Accomplishing this would require professional development in culturally sensitive teaching strategies and assessment. Research strategies that really answer the questions of whether programs are effective must also be developed.

Mundry, S. (2005). What Experience Has Taught Us About Professional Development; Facilitating Mathematics and Science Reform: Lessons Learned. *National Network of Eisenhower Regional Consortia and Clearinghouse*.

The Eisenhower Mathematics and Science Consortia and Clearinghouse Network published "What Experience Has Taught Us About Professional Development; Facilitating Mathematics and Science Reform: Lessons Learned" in 2005. This monograph outlines the characteristics of effective professional development. These include understanding how people learn science and math, building content and pedagogical knowledge with a focus on student learning, using research-based methods that the teacher can model in the classroom, extending professional development activities over time, developing professional learning consortia, supporting teacher leadership development in the community, consistent evaluation of the impact of professional development programs on student learning, and developing understanding of how factors such as teacher turnover and administrative changes can be dealt with within the professional development programs.

Second Steps: Learning about Changing Practice

The LLC staff is composed of professors from the education department at Lake Forest College, teachers currently teaching in the Waukegan Public Schools, retired teachers/ administrators from the Waukegan Public schools, a professor of history and a mathematics professor from the College, a colleague relocating from Colorado this year who has been a teacher and principal and has expertise in assessment of student learning, and me a chemistry professor. The LLC staff is developing the project design and allowing it to have some flexibility to meet the needs of the Waukegan teachers for whom it is designed. I found the Project not only to include all aspects of the best faculty development practices that I found in the literature, but a compelling methodology for achieving its goals, as well.

Specifically, the LLC staff planning meetings provided me with a framework for the literature I was reading. I learned about providing the students with an authentic learning experience, one, that meets them at their point of need and is community-based. I learned about the approach of scaffolding concepts to prepare students for the learning that is to come. LLC's focus on guided individual reflection on teaching practice is key in identifying reasons for changing practices.

The LLC Project design includes the following features:

- 1) The faculty development work extends for three years.
- 2) The project includes a huge focus on community-based education beginning with a tour of Waukegan focused on the waves of immigrants moving to Waukegan.
- 3) From this tour an authentic conversation evolves about teachers knowing their students and understanding their parents.
- 4) In addition to the two weeks of work done with the teachers in the summer, study groups work throughout the year to continue to support the teachers as they undertake their summer projects.
- 5) A clearly stated expectation that teaching practice will be transformed by adding critical thinking skills in learning activities, and student projects will evolve from research undertaken by the teacher. Teachers who see themselves as active learners and are actively engaged in research will model life-long habits of mind that are essential for all students to live full, productive lives.
- 6) Issues blocking a student-centered learning approach are faced and discussed using texts as guides.
- 7) Teachers are asked to maintain a learning log in order to reflect on the many aspects of their learning.
- 8) Group work and reading about leadership is expected to result in a cohort of teacher-leaders.
- 9) Pre-service teachers are placed in Waukegan schools to gain experience in high-need schools.

Next Steps

My practice is evolving because of my association with LLC. As a chemist I might use the language of my discipline to describe what I try to do in my classroom, but through LLC, I have realized that my lack of knowledge of learning theory truncated my ability to be reflective about my teaching practice. I could simply read the literature and, lacking my LLC experiences, readily believe that I was doing all of the necessary elements of effective teaching. Only when I became immersed in the LLC project and the learning that accompanied it, did I come to understand the larger context of my teaching and the cultural attributes and needs of my students. I found it both incredibly difficult to learn about the shortcomings in my teaching and incredibly exciting and profoundly humbling to experience the professional development LLC provided.

1) *Changing My Practice*

As I worked with LLC through the summer, I reflected about my teaching. I realized that I needed to reorient my thought processes about student learning. In General Chemistry 110, I have tried different methods to meet students at their point of need. I did this by asking them to write down three goals they had for the course and then asked each

of them to read one aloud to the class. I then asked them to identify three things they would need to achieve these goals.

I worked to make the classroom safe for all questions. In addition, I have pointed out how students help one another through their questions. My goal is to highlight engagement and collegiality within the learning process. I had done this in the past, but not as conscientiously.

I am trying to address literacy issues by teaching students how to read the textbook. This is ongoing. Our text is inquiry-based, presenting models derived from data. So, I am taking time to teach them how to read and work with a model, and I'm using the scaffolding techniques which I learned from LLC the summer.

I assess the students frequently on an informal basis. The formal assessment is the same as in the past, quizzes and exams, but I am asking them more questions in class to assess where they are having difficulty with the homework. Evidence that this is working is the number of students who are coming to me with questions that are more remedial. This is also evidence that they understand I want to help them get past the roadblocks.

I listen to my students more intentionally and more patiently. I am asking students to engage with me in this learning process. I know that they are telling me by action and word what they are getting and what they don't understand. I'm paying more close attention!

Chemistry involves critical thinking skills. I am more aware now that I need to make the connection between chemistry and critical thinking explicitly with my students.

I have more to integrate in my classroom from what I learned this summer. I also have more to learn. This is the beauty of the LLC Project design. In developing teacher-leaders, one is establishing a feedback loop that is constantly evolving. This is incredibly exciting!!!!

2) Course Development for Pre-Service Students

As I continue to work with the LLC staff this year, I will be developing a course, Chemistry 109, *Learning about the Physical World*. This course is specifically designed for K-12 pre-service students at Lake Forest College. It will provide elementary education students with the physical science content recommended for elementary certification.

The major goals of the course will be:

- a) To provide students with the specified content in chemistry and physics;
- b) To develop student ability to work with experimental evidence in the laboratory;
- c) To connect lab experiences with the classroom experience of elementary classrooms;
- d) To develop practical science teaching resources for the elementary education students to use when they move into their own classrooms.

An additional hoped for outcome is collaboration of the chemistry, physics and education departments in the development of this course, a commitment is to provide a more intentional mechanism for elementary education students to learn to teach science. Such an outcome requires all three departments to aid in course development.

My work with LLC has helped me to understand both the needs of pre-service teachers and the students they will teach in high-need schools. This fall, I will be observing K-12 classrooms in Waukegan where I want the learning experience for the pre-service teachers to be realistic and authentic.

Applying Action Research in a Field-Based Master's Program to Improve Teaching and Learning in Rural and Urban High-Need Schools, *by Mary Ball Brant and Ellen Suzanne Lee*

Author Bios

Mary Ball Brant, PhD, is an Assistant Professor in the School of Education at Saint Xavier University where she teaches in the Master of Arts in Teaching and Leadership program. Her special interest is in action research.

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Abstract

Problems of insufficient academic achievement and poor performance are likely to occur in high-need schools. Because of their limited resources, teachers often feel isolated in solving these problems. Teachers enrolled in the Master of Arts in Teaching and Leadership program at Saint Xavier University participate in a structured implementation of action research in their classrooms, often collaborating with colleagues to solve classroom problems. This paper examines two sites where demonstration projects were designed and implemented by teacher-researchers: one to address academic achievement and one to address poor performance. Site A was located in an urban area with approximately 50% limited English-proficient students, while Site B was located in a rural industrial community with a low income school rate of 38.6%. At the conclusion of implementation, strides had been made in improving vocabulary knowledge and homework completion in the two high-need schools.

Saint Xavier University's Field-Based Master's Program

Located in south Chicago, Saint Xavier is a co-educational Catholic university, founded in 1846. The Master of Arts in Teaching and Leadership (MATL) is a field-based program that Saint Xavier offers in partnership with Pearson Achievement Solutions, a provider of customized solutions for school improvement. The university operates more than 40 field-based sites throughout northern and central Illinois. Graduate students enrolled in the MATL program must be full-time teachers with a classroom assignment. Teachers have enrolled in this program for more than 15 years, partially because the design has enabled them to employ a hands-on approach, focus scholarly research on their students' needs, and have an immediate impact in their classrooms.

The program employs an action-research methodology that is practical and relevant to all grade levels and content areas. Action research can be particularly helpful for teachers in high-need schools because they are required to expand their teaching repertoire to meet daily challenges inherent in their settings. Each activity is, in essence, a demonstration project in the school. The outcomes of action research projects include a model for improving school instruction or resolving pedagogical issues. A leadership component in the program requires that the teacher-researchers share the results of their demonstration projects with their colleagues so that the school community may benefit from the experience and consider adoption of successful strategies.

Action Research

The qualitative inquiry approach of action research also has been termed "teacher research." A teacher-as-researcher model is designed to improve teaching and learning. According to Gay and Airasian (2003), "One way that action research is conducted is by individual teachers who seek to improve their understanding and their practice in their classrooms" (p. 263). Calhoun (1994) described action research as follows: "Let's study what's happening in our school and decide how to make it a better place" (Gay & Airasian). Glickman explained, "action research in education is study conducted by colleagues in a school setting of the results of their activities to improve instruction" (2002, p. 24).

The action research model at SXU is a problem-based model that sets student growth as the measure of successful intervention (Hilton, 2002). Upon completion of their projects, students prepare a thesis using the format of a qualitative action research report, including the following steps: "Identify the topic or issue, conduct a literature review, develop research questions, collect the data, analyze the data, carry out action plan and share the findings" (Gay & Airasian, 2003, p. 270). Teacher-researchers may work individually or with groups of two to four teachers; however, all researchers must implement their action research intervention in their respective classroom.

This article outlines action research projects of two high-need schools. The first, Site A, is a high-need elementary school in a highly industrialized urban area. The second, Site B, is a middle school in an industrial community in a rural area. The topics selected by the teacher-researchers at their respective schools were vocabulary knowledge and homework completion.

Site A: Urban High-Need

Three teachers worked on the project at Site A in the second, seventh/eighth special education, and eighth grades. The project in the second grade will be outlined here, as achievement at that level is critical to children's future success. Students in the targeted self-contained second grade classroom exhibited a lack of vocabulary knowledge, which interfered with their academic success. Evidence of this problem was documented through reading assessments and observations by the teacher-researcher. Seventy-five percent of the targeted students had been enrolled in a reading recovery program when they were in first grade.

The school is located in a southwest suburb of Chicago. In the community, 76% of the population was defined as low income. The median family income was \$31,354. The school population was comprised of 27.7% Caucasian, 23% African American, 49% Hispanic, and .03% Asian Pacific Islander. The school attendance rate was 93%; the student mobility rate of 39%; and the instructional expenditure per child was \$4,024.

The teacher-researchers, Malvin, Mlakar-Hillig, and Troy, surveyed the literature to determine causes of the students' lack of vocabulary knowledge. They discovered extensive research that links slow vocabulary and reading development to disadvantaged students. The demographics at Site A fit the profile of a high-need school. A National Assessment of Education Progress report provided data that linked longstanding and unacceptably large differences in reading performance and student poverty levels. Researchers have postulated that many low income children entering kindergarten have heard only half the words to which high income children have been exposed. Consequently, they understand only half the meanings of words and language conventions used by high income children. When compared with students in wealthy school districts, low income students have about 50% fewer books available to them. Researchers have postulated that less advantaged children suffer double or even triple losses. When children don't know the words, they fail to gain knowledge from their experience of reading. Consequently, they don't learn new word meanings from the content they read. It has been suggested that, in order for learning to occur, new information must be integrated into what children already know (Adler & Fisher, 2001, Cunningham & Allington, 1999, Hirsh, 2001, Remelhart, 1980, as cited in Christen & Murphy, 1991, as cited in Malvin, Mlakar-Hillig and Troy, 2003). Additional research revealed that limited English proficient students are at risk as well.

At Site A, the teacher-researchers theorized that a lack of fluency could be attributed to the fact that almost 50% of the students were Hispanic, and English was not the primary language used at home. Documentation was found in the literature that the failure to develop Standard English skills obstructed children's ability to read, write, speak, listen, and think (Demoulin, Loye, Swan, Block, & Schnabel, 1999, Morrow, 1999, as cited in Malvin, Mlkar-Hillig & Troy, 2003).

In order to obtain baseline data, the teacher-researchers administered a diagnostic test, and a teacher created primary vocabulary assessment. Because a lack of fluency at home and lack of student interest in reading have been found to be contributing factors in vocabulary deficiencies, the teacher-researchers also administered a parent reading and language survey and a survey on student reading habits.

Results from the parent survey revealed that 60% of the children preferred watching TV to reading books. Most of the children seldom or rarely visited the library, and only 21% had a library card. Still, a majority of parents believed that reading is important and helps to build confidence and enjoyment. The teacher-researchers were encouraged that the parents were interested in having their children improve their literacy skills and concluded that creating greater parent awareness would increase parental support. The results from the student survey were even more encouraging. All the students said that they enjoyed reading, although their performance on the assessment created by teacher-researchers indicated that, of 14 students, none performed at 80 % or above; two performed at less than 40%; two between 50-59%; five between 60-69%; and five between 70 and 79%.

On the word opposites test, one student scored between 40-49%; eight between 50-59%; and five between 60-69%. The teacher-researchers realized that even modest gains would improve the probability of their students achieving literacy skills leading to improved performance.

After identifying the problem, analyzing ethnographic and baseline data, and researching causes, the teacher-researchers began a literature search to determine the best solutions for the problem of poor vocabulary knowledge. They discovered that students learn vocabulary more effectively when they are more directly involved in constructing meaning rather than memorizing definitions or synonyms. Relating personal experiences through the use of graphic organizers, and semantic mapping and analogies was suggested as a strategy to encourage student interaction (Smith, 1997, as cited in Malvin, Mlakar- Hillig & Troy, 2003).

Read-alouds were recommended as the best activity for encouraging the development of language and literacy. Knowledgeable others advised that students view the illustrations while the reading is taking place so that they can better grasp facts and concepts (Adams, 1990, as cited in Beck & McKeown, 2001, as cited in Malvin, Mlakar-Hillig & Troy, 2003).

Following their literature search, the teacher-researchers designed an action plan that would apply many of the strategies from the research of knowledgeable others. The action plan was implemented over a 16-week-period from January to May. The following strategies were employed:

Action Plan

Strategy	Activity
Introduce contextual analysis	Graphic organizers Partner Reading Semantic Word Map
Develop vocabulary through the content areas	Reading and writing across the curriculum
Identify meaning using base words	Word sorting

	Analogies Word walls Word origins Concept wheel Unlocking a mystery
Use descriptive vocabulary in writing assignments	Many words from a few The tireless inventor Making a word
Respond to reading	Read-alouds Discussion Draw a cartoon Show and tell Oral book report

The objective of the action plan was to increase student vocabulary through a balanced literacy program. Following the completion of the action plan, tests were administered to determine if improvement had occurred.

Administration of the Primary Vocabulary Assessment to the second grade showed that two students scored below 40% on the pre-test, while no students scored below 40% on the post-test. The pre-test results indicate that all 14 students performed below 80% on the pre-test. The post-test shows that, while seven students continued to score below 80%, seven students improved to score above 80% (Malvin, Mlakar-Hillig, & Troy, 2003, p. 29). Administration of the Word Opposites assessment revealed measurable vocabulary growth. The pre-test showed one student scored between 40-49% in correct responses; no student scoring below 50% correct on the post-test. Eight students scored between 50-59% correct on the pre-test; only three scored in that range on the post-test. The greatest improvement on the post-test occurred among the ten students scoring between 60-69% correct, compared to only five in that range on the pre-test. One student scored between 70-79% correct on the post-test. In contrast none scored higher on the pre-test than the 60-69% range.

Conclusions and Recommendations of Site the A Project

The teacher-researchers found that vocabulary knowledge was more readily transferred when word meaning was used in context rather than in isolation. Repeated exposure to vocabulary across the curriculum resulted in improved performance on the post-assessments. Malvin, Mlakar-Hillig, and Troy recommend multi-faceted activities to assist students to “further their vocabulary knowledge and reach their full potential as life-long learners” (2002, p. 36). The teacher-researchers feel that the action research plan was beneficial both to them and their students, and they have continued to implement the skills they developed.

Site B: A Rural High-Need School

This action research project took place in a small, rural industrial county in northwestern Illinois. The public middle school, sixth through eighth grade, had seven feeder communities drawing from 120 square miles. The school educated 821 students, which included a low income school rate of 38.6%, compared to a district-wide of 36.2%. As described in the Illinois School Report Card, “low income students come from families receiving public aid; live-in institutions for neglected or delinquent children; are supported in foster homes with public funds; or are eligible to receive free or reduced-price lunches.” The mobility rate for the school was 21.9% ; for the district, it was 16.4%.

Attendance rates for the school and district were 95.2% and 94.5%, respectively. The majority of the student body was Caucasian (73%), followed by the largest minority, Hispanic (22%). The remaining minorities were African American (4.5%) and Asian/Pacific Islander (5%). According to the U.S. Census Bureau, the majority of the countywide population is Caucasian (89%), followed by Hispanic or Latino (9%), and African American and Other rounding the additional 2%. According to U.S. Census Bureau data, the total estimated population was 59,886, with a median household income of \$40,354.

Evidence of Need

Derrer, Dunphy, and LeFevre (2006) identified homework completion as a major problem area for their pre-algebra eighth grade students. Incomplete, late, and missing assignments suggested a lack of motivation to complete homework and incomplete homework appeared to negatively impact student performance in their mathematics classes. The teacher-researchers gained insight into the problem through a parent survey, student homework journals, and homework logs.

Ninety-five of 103 parents (92% return rate) completed a survey containing seven questions. Their responses revealed that 12% were uncertain or disagreed that homework was necessary, while the remaining 88% agreed or strongly agreed it was necessary. While 66% of the respondents assisted their child three, four or five nights a week with homework, 34% assisted with homework only one or two nights per week, or did not think there was enough time for their child to complete homework during the week, or responded that their child did not have any homework to complete. When identifying their main role in helping their child with homework, 87% either saw their role as looking over their child's homework or clarifying their child's assignment, while 6% felt they had to re-teach the content; 4% thought they provided too much help; and the remaining 3% found the question not applicable.

The student homework journal was used in four eighth grade classes totaling 97 students. Any student who did not complete a homework assignment was asked to complete a student homework journal while the other students were grading their completed homework assignments. The homework journals were then handed in at the same time that the graded assignments were returned to the teacher. Submission of the journals indicated that the same students consistently failed to complete homework. The journals showed that students either lacked understanding of the assignment or concept (14%), had forgotten or lost their work (55%), had not finished the assignment or submitted work (26%), or had other specific excuses (5%).

Homework logs were used as the third tool to triangulate the data. The teacher-researchers kept records of the 97 students in the pre-algebra classes. Their records included the number of completed assignments, missing homework assignments, late homework assignments, and student absences from school. In order to gain baseline data, the teacher-researchers analyzed the assignments that were given during the two weeks prior to implementation of the intervention. Results showed that 88% of the assignments were completed and submitted on time; 12% (n=100) were missing or late; and less than 1% (n=7) of students were absent during this two-week period.

Teacher-researchers Derrer, Dunphy, and LeFevre (2006) conducted a literature review under the authors' guidance prior to the implementation of their intervention. A portion of what the teacher-researchers found in the literature is presented below, while the complete review is available in their unpublished master's thesis. The teacher-researchers found that the homework literature contained "conflicting expert opinions and studies regarding the effectiveness and value of homework" (Derrer, et al., 2006, p. 28, as cited in Ratnesa, 1999; Viadero, 1995; Rees, McEnvoy, Juniper, Nathan, & Smith, 2003; Kravolec & Buell, 2001; Cooper, 1999, 2001, 2004; & Bryan & Burstein, 2004). As for experts who support teachers' use of homework, Derrer, et al. found Cooper (1999), Cooper and Valentine (2001), and Paschal (1984) (all cited in Epstein & Van Voorhis, 2001) identified homework as increasing achievement, performance, and test scores. Improving students' attitudes toward school and learning and improving proper study habits was found by

Derrer, et al., in Begley (1998) and Cooper (1999, 2001, & 2004). Also cited by Derrer et al. on page 29 in Cooper (2001), Cooper describes the positive effects of assigning homework:

...better retention, increased understanding, critical thinking, concept formation, information processing, curriculum enrichment, learning during leisure time, teaching that learning can take place anywhere, improved attitudes towards school, better study habits and skills, greater self-direction, greater self-discipline, better time organization, more inquisitiveness, more independent problem solving, and greater parental application of and involvement in schooling. (p. 36)

With encouragement from Keith and Cool (1992) and Van Voorhis (2000) (both cited in Epstein & Van Voorhis, 2001), the teacher-researchers chose to implement Teachers Involve Parents in Schoolwork (TIPS) for the first two weeks of their intervention. The TIPS strategy recommends parent signatures in student handbooks. This homework design places responsibility on the student and encourages the student to share knowledge and learning with others. TIPS encourage the family member to be supportive, but not be responsible for teaching content or skills (Epstein, & Van Voorhis, 2001, Epstein, Simon, & Salinas, 1997, Silvis, 2002, & Van Voorhis, 2004, as cited in Derrer, Dunphy, & LeFevre, 2006). The teacher-researchers also decided to use real-life activities for the two weeks to connect the homework to family, community, and future, as Bryan and Sullivan-Burstein (1998) recommend. One TIPS assignment was to be given weekly, with parental signatures to signify homework completion and cooperation, and students recording their daily and weekly assignments.

The teacher-researchers also cited and implemented Miller's idea (1996) of scheduling quizzes that have questions randomly selected from the daily homework assignments. The teacher-researchers decided to give Friday quizzes for the next two weeks of their intervention.

The next two weeks, the third phase of their intervention, the teacher-researchers cite Bryan and Sullivan-Burstein (1998) and Salend and Gajria (1995), who suggest providing weekly rewards to support the importance of homework completion. Consequently, the teacher-researchers decided to hand out candy or Gotchas (a student recognition system) on Friday to students who handed in all their assigned homework for the week. To individualize the rewards, the teachers wrote an encouraging phrase on each reward.

Finally, for the fourth phase of their intervention, the teacher-researchers combined all three strategies for the final two weeks. Thus they simultaneously instituted TIPS, Friday quizzes, and the reward system for the final two weeks of the eight-week intervention.

Action Plan

To implement their demonstration research project, the teacher-researchers designed weekly TIPS assignments to reinforce mathematical concepts, gave weekly Friday quizzes using questions from the week's homework assignments, and provided candy and Gotchas for rewards.

Phases

Activities

Phase I
September 12 – 23, 2005
TIPS

Completed daily and biweekly homework logs
Collected the weekly TIPS assignments
Daily checked for parent signatures

Phase II
September 26 – October 07, 2005

Completed daily and biweekly homework logs
Collected, graded, and returned Friday quizzes

Friday Quizzes

Phase III October 10 – October 21, 2005 Rewards	Completed daily and biweekly homework logs Distributed Friday rewards
Phase IV October 24 – November 04, 2005 Simultaneous Use of Interventions	Completed daily and biweekly homework logs Collected weekly TIPS assignments Daily checked for parents' signatures Collected, graded, and returned Friday quizzes Distributed Friday rewards

As has been noted, each strategy was implemented for a two-week period, using all three methods simultaneously for the final two weeks. At the end of this eight-week period, the teacher-researchers collected post-data for an additional two weeks using their daily and summative teacher homework logs. The teacher-researchers then compared this final two-week period with the two weeks of baseline data in order to identify any changes in student behavior. The teacher-researchers were hoping for student behavioral changes as a result of exposure to these strategies leading them to become consistent homework completers.

The daily and summative teacher homework logs were used to gather performance data to compare with baseline data. These logs included late, incomplete, or missing work, as well as data on the completion of weekly journals and TIPS assignments.

Results and Conclusions of the Rural High School Project

During Phase I, TIPS, 86% (667 of 776) of homework assignments were completed, 79% (154 of 194) TIPS assignments were completed, 68% (632 of 923) of parents signed the student handbook, and 33% (9 of 27) of the absences occurred on Mondays.

During Phase II, Weekly Quizzes, 78% (725 of 925) of homework assignments were completed, 155 missing/late assignments were tallied, 33% (51 of 155) assignments were not completed for Monday's classes, 32% (50 of 155) were not completed for Friday's classes, and 30% (14 of 47) absences occurred on Wednesdays.

During Phase III, Weekly Rewards, 84% (653 of 776) of homework assignments were completed, missing/late assignments were distributed rather evenly throughout the week: 26% (32 of 123) on Tuesday, 25% (31 of 123) on Thursday, and 24% (30 of 123) on Friday. Likewise, the 57 absences were distributed throughout the week with 29% on Tuesday (n=17) and 25% (n=14) on Friday.

During Phase IV, Simultaneous Use of Strategies, 84% (856 of 1020) of homework assignments were completed, 72% (139 of 194) TIPS assignments were completed, 40% (389 of 970) of parents signed the student handbook, and 28% (14 of 50) of the absences occurred on Mondays.

When comparing post-data with baseline data, the data revealed a 3% increase in completed assignments (91% post; 88% baseline). The missing/late completed homework submissions were more evenly distributed throughout the week during the post-data with Monday and Friday accounting for 29% each, whereas in the baseline period, Tuesday accounted for 40% of the missing or late submissions. Absences were more evenly distributed throughout post-data, although there were more student absences during post-data (44 in the post-data phase as compared to seven in the

pre-data phase). In spite of the fact that absences increased during the school year, whether to illness, inclement weather, or family situations, the homework completion remained constant.

As stated, the teacher-researchers found that homework completion remained rather constant during the implementation of the action plan. This situation was different from performance in the past because, prior to the implementation, increased complexity of homework assignments had usually caused a decrease in homework completion as the year progressed. And, although students appeared to be stubborn and apathetic in obtaining their parent signatures, the TIPS assignments seemed to help. The weekly quizzes seemed to bolster accountability and, although homework completion rates did not increase, quiz scores and homework grades improved. Moreover, removal of the candy and Gotchas did not seem negatively to affect homework completion.

The teacher-researchers recommend TIPS assignments, as requiring parental signatures helps to assure that both students and parents are informed of homework expectations. Also, because students made efforts to correct and complete late assignments in an effort to improve their quiz scores, the weekly quizzes appear to alter positively student homework practices and achievement levels. Finally, the teacher-researchers saw rewards such as candy and Gotchas as positive reinforcement for homework completers, but such extrinsic rewards appear not to motivate non-completers to complete their homework. The teacher-researchers thought they would continue the TIPS and Friday quiz strategies, while trying another action research project to validate their findings that the reward system should be permanently removed from their list of strategies to increase homework completion.

Overall Conclusions and Recommendations

The results of these two demonstration projects reflect the ethnography of both the subjects and the teacher-researchers as well as varying methodologies. Vocabulary knowledge was a major problem at the urban school as evidenced by the students' limited English proficiency. The mathematics teachers in the rural setting struggled with some parents when it came to homework completion being a priority. The impetus for these students to complete their homework appears to have been absent for some families, perhaps reflecting the fact that nearly 90% of the parents did not graduate from college, thus their expectations of their role in their children's education may have been limited compared to parents who graduated from college. Assuming that parent involvement is a critical component of children's success, the action plan included parent signatures for their child's completed homework. Regarding differing methodologies, assessment of academic problems can be used such as in the pre-research tests and post-research tests at Site A. Logs and journals can be used as student performance indicators, as presented with the Site B case.

Action research is a methodology that lends itself to continuous applications to improve student learning. When a project ends, the teacher-researcher assesses the results, implements the pedagogical improvements the results support, and designs a new project to tackle remaining issues in student performance. As these action research projects illustrate, the authors wished to continue use of the strategies and skills they developed. Even though these projects lacked a sophisticated quantitative measurement, information gleaned from analysis of a demonstration project may positively affect student performance and classroom climate, as the authors of these projects reported in their conclusions and recommendations.

Action research is a practical strategy for high-need schools where resources often are limited. The main cost of action research is teacher time, provided the teacher has knowledge of best practice strategies. The Saint Xavier MATL program provides a structure for teachers to engage in action research. Teacher-researchers are guided through identification of the problem, assessment of their demographics, and review of the literature. Teachers who are not involved in the formal program might not have such resources at hand. We recommend that schools develop in-service training and professional development opportunities to provide support for teachers to engage in best

practices and strategies that are relevant to their particular population. Resources are limited in high-need schools, but information and access is readily available electronically at low cost. Sharing information on what works for others at the local level is critical to the success of high-need schools and might be the best resource available to teachers.

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Developing a Higher Quality Field Experience in High Need Schools For Candidates Seeking Secondary Certification, *by Darlene Hoffman, Ray Boehmer, Judy Parrish, Tim Kovalcik, and Malcolm W. Moore*

Author Bios

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Abstract

A survey was conducted of teacher education candidates in secondary education, content-area professor and principals of high-need schools to determine how to improve candidates' Junior-level field experience. Students requested greater opportunities to teach lessons and to become familiar with the culture of the high-needs school. The principals emphasized their desire to have interns arrive and leave at a regular and consistent time and to have interns that were prepared with knowledge, skills, and dispositions. Content-area faculty recognized the need for students to have experience transforming their content-area knowledge into learning activities appropriate to a Grades 6 through 12 curriculum.

Introduction: The Problem

It became evident to Millikin University's School of Education faculty that our secondary education candidates typically have inferior pre-student teaching experiences compared to those of our elementary candidates. This conclusion arises from several sources and perspectives:

- Repeated complaints from students about their internships, despite their overall assessment that those experiences are one of the most meaningful aspects of the teacher education program. Very often, secondary education internships are almost exclusively limited to observations of the host teacher.

- Very positive feedback from the schools and host teachers and our elementary education and early childhood education students regarding our newly implemented sophomore and junior blocks, which suggests the inequities in field experiences between elementary and secondary education candidates.
- Failed efforts to get scheduling arranged to improve the secondary education field experiences.
- Uncertainty about whether our cooperating high schools would be receptive to a structured block experience.
- Informal reports that some secondary education candidates did their first actual teaching in their student teaching classrooms.
- Overall, fewer successful teaching experiences among secondary education teacher-candidates when compared to elementary education teacher-candidates.

Our goal for this action research summer project was to develop a pilot program that will do the following: a) build student confidence through actual teaching prior to the candidate's senior year; b) help our secondary candidates understand the culture and context of middle and high school teaching; c) provide "supported" teaching of lessons to small groups and whole classes; and d) provide experiences in high-need schools with diverse, high-need student populations.

After concluding that our current successful elementary education block structures in reality constituted a modified Professional Development School (PDS) approach, we wanted to organize a similar experience for our secondary candidates.

Research findings suggest that a PDS model helps pre-service teachers in the following ways:

- Gain confidence and a sense of personal efficacy when they are part of classrooms for an extended period of time (Grisham, 2000)
- Have more authentic interactions with students (Allsopp, et al, 2006)
- Become more attuned to the culture and needs of the school (Allsopp, et al., 2006)
- Begin to assume professional responsibility and to think of themselves as teachers, not just students (Blocker & Mantle-Bromley, 1997)

The research literature also cautioned that more intensive field experiences can pose problems as well as benefits. Findings of particular interest to us were the following:

- Interns saw PDS as more intense and, in some ways, more stressful (Bullough & Kauchak 1997).
- Communication can easily break down between school and university staff, i.e., teachers, faculty, administration, and interns (Bullough & Kauchak, 1997).

From discussions in our campus Committee on Teacher Education Programs (CTEP), we were very much aware of two issues that could affect our ability to improve the secondary education field experiences. Scheduling issues arise for students enrolled in majors with low enrollment but which have numerous requirements to be met in the junior year. Also, in a high-need school district, such as Decatur, where schools often are on the No Child Left Behind watch list, we were unsure how our efforts to collaborate in a more intensive internship would be received.

Literature Review

Our review of relevant research literature enlarged our understanding of the challenges we faced. Darling-Hammond (2006), in her most recent analysis of exemplary teacher education programs in the United States, devoted an entire chapter to clinical experiences and their role in effective approaches to teacher education. Since the Holmes Report of 1986, teacher education reform has focused on designing clinical experiences early in the candidates' preparation to

connect them to the realities of classroom culture and to provide multiple opportunities to put into practice what is learned in university courses.

Several general studies support our conclusions about Millikin's teacher education program. Huling (1998), through an analysis of a joint data collection system on clinical and field experiences, found that secondary education field experiences tend to lag behind elementary education experiences, corroborating the conclusion that we have reached about our own program. Fleener's (1998) unpublished doctoral dissertation describes a study of nearly 2,000 teacher education graduates from 1993-1996. Of those prepared in field-based programs, only 4.8% left teaching in their first five years, while there was a 12% attrition rate in the first five years among those prepared in traditional, campus-based programs.

Blocker and Mantle-Bromley (1997) compared campus-based versus PDS secondary teacher preparation and found that candidates who were involved in the PDS program were more satisfied with their overall preparation. These candidates also thought that they interacted more with students, developed more confidence, taught more lessons, and more readily identified concrete examples of connections between theory and practice. In addition, they found that communication between university faculty members and high school teachers often was ineffective, and expectations were not always well communicated.

Some studies that focused on specific disciplines in secondary teacher preparation offer relevant findings for our work. Gee (1997) found that more structure is needed in methods course offerings, as well as a need to connect these courses to supervised experiences in classrooms. Suleiman (2000) demonstrated that well-structured field experiences encourage more feedback from and dialogue among pre-service teachers and with supervisors and an increased tendency to work collaboratively on development and evaluation of curricula.

Bullough and Kauchak (1997) identified obstacles to successful partnerships between schools and universities. They found that lack of communication among principals and university partners, a tendency for university faculty to take a "top-down" approach to planning, and lack of involvement of teachers in early stages of planning all contributed to significant problems and challenges in school-based teacher education programs.

Schoon (1996) described the "seamless model" of science teacher preparation in a way helpful in our program development. His model consists of a pre-student teaching practicum not conceived as a separate experience from student teaching. Methods course instructors and cooperating teachers from the pre-student teaching experience continue to observe and evaluate candidates throughout the student teaching experience. Methods professors also confer with the cooperating teacher in developing field assignments and serve as university supervisors during the student teaching practicum.

Mewborn (2000) studied mathematics education candidates and found that observation and reflection with peers and the teacher about student-reasoning development promote positive attitudes toward inquiry-based learning and increase understanding of children's reasoning processes. Her study involved more than one pre-service candidate per cooperating teacher, which more readily provides opportunities for such in-depth discussions to take place. The small number of candidates in our program may make this impractical, but we believe we should attempt to make such arrangements when possible.

Allsopp, et al (2006) studied an urban teacher education partnership model, which emphasized building linkages between theory from coursework and applications in the field setting. Candidates reported such linkages when they were able to apply the concept while teaching their student, rather than when observing someone else teaching.

Powell and McGowan (1995) discussed the importance of the mentor-teacher as both colleague and professional collaborator, as well as the overall development of the teacher candidate.

Zeichner (1992) has written extensively about the value of teacher reflection, both for pre-service and practicing teachers. He stresses the advantages of teachers reflecting together in collaborative groups, both within and across disciplines. Dinkelman (1999) looked at the preparation of secondary social studies teachers and found that well-structured and supervised field experiences help candidates develop a common language for critical reflection and common ground for understanding social science education.

Bransford (2000) emphasizes the importance of social environments for pre-service teachers that promote reflection and provide frequent opportunities to discuss their understandings with mentors and peers.

Description of Data Collection

Our efforts to design an intensive, authentic, and involved field experience for students seeking secondary education certification in several different content-areas required that we gather data from all stakeholders. The literature review reinforced the need for proactive communication with principals and teachers in the school districts, as well as with our pre-service teachers and our faculty within the disciplines. (Allsop, *et al*, 2006; Bullough & Kauchak, 1997). To determine candidates' concerns, we wanted to follow up on candidates' evaluative comments and results of follow-up studies, which indicated dissatisfaction with their internships. We knew from meetings of our Council on Teacher Education Programs that input was needed from faculty within the content-areas because our discussions at 2005-2006 CTEP meetings (Minutes, March, April, 2006) revealed content-area faculty skepticism that their curriculum would permit field experiences similar to those that had been designed for the elementary education sophomores and juniors. We needed to explore the specific apprehensions of the content-area faculty in order to address their concerns effectively.

Table 1, which compares our present elementary and early childhood education field experiences with secondary education field experiences, increased our motivation to improve the secondary education field sequence. It clearly illustrates that secondary education students have fewer hours in the classroom, less structured tasks, and less Millikin faculty supervision.

TABLE 1: FIELD EXPERIENCES	
ELEM/ECE EDUC. MAJORS	SECONDARY EDUC. MAJORS
Education 120 – Introduction to American Education In this freshman-sophomore level class, students are introduced to a variety of schools at many different grade levels. Students visit rural schools, urban schools, magnet schools, parochial schools, elementary schools, middle schools, and high schools. Administrators provide an overview of the program. Then, students are assigned classrooms where they observe for approximately one hour and write reflective responses. (9 internship hours)	Education 120 – Introduction to American Education In this freshman-sophomore level class, students are introduced to a variety of schools at many different grade levels. Students visit rural schools, urban schools, magnet schools, parochial schools, elementary schools, middle schools, and high schools. Administrators provide an overview of the program. Then, students are assigned classrooms where they observe for approximately one hour and write reflective responses. (9 internship hours)
Education 170/172 - Education Internships I and II In the Education Internships, students serve as teaching assistants for 30 hours. These internships may be completed 3 or 4 hours a week for an entire semester (ED Internship I), or they may be done in an intensive 5-day	Education 170/172 - Education Internships I and II In the Education Internships, students serve as teaching assistants for 30 hours. These internships may be completed 3 or 4 hours a week for an entire semester (ED Internship I), or they may be done in an intensive 5-day

internship during university breaks (ED Internship II). (30 internship hours)	internship during university breaks (ED Internship II). (30 internship hours)
Sophomore Block - Internship in which students will spend two full days each week in the classroom over a 4-week period. This program enables students to become more involved in actual teaching activities. Students will be expected to teach lessons and perform other classroom duties. They will be supervised directly by cooperating teachers and professors in the schools. (64 internship hours)	No Sophomore Block or equivalent field experience.
Junior Block - Internship in which students will spend three full days each week in the classroom over a 4- week period. This program enables students to become more involved in actual teaching activities. Students will be expected to teach lessons and perform other classroom duties. They will be supervised directly by cooperating teachers and professors in the schools. (96 internship hours)	Education 310 - Creating Communities of Learners Juniors and seniors in this class study learning theory, classroom communication, classroom management, and discipline. During the semester, they spend time in a classroom, fulfilling tasks determined by their cooperating teacher. What they do depends partly on the times the students are able to be in the schools. Cooperating teachers are the only supervisor. (20 internship hours)
Education 406 – Multidisciplinary Instructional Design and Assessment for Elementary Teachers This class is for students entering the semester prior to student teaching. As a part of this experience, they complete an internship serving as an assistant teacher in the classrooms where they are placed for student teaching. This is a unique feature of Millikin’s program because it provides students a long-term relationship with their cooperating teachers, the schools, and students in those schools. It extends the student teaching experience in some ways and shortens the length of time that must be devoted to orienting the future teacher to the new environment when the actual student teaching begins.(20 hours)	Education 425 – Instructional Analysis, Design and Assessment for Secondary and K-12 Teachers This class is for students entering the semester prior to student teaching. As a part of this experience, they complete an internship serving as an assistant teacher in the classroom/s where they are placed for student teaching. This is a unique feature of Millikin’s program because it provides students a long-term acquaintance with their cooperating teachers, the schools, and students in those schools. It extends the student teaching experience in some ways and shortens the length of time that must be devoted to orienting the future teacher to the new environment when the actual student teaching begins. (20 hours)
Total Hours Possible 219	Total Hours Possible 79

In addition to the data we would gather from our pre-service candidates, local school district administrators and teachers, and faculty within the content-areas, we did not have to start from scratch in developing new secondary field experiences because other universities of our size already had similar field experiences in place. We used a multi-faceted data gathering process aimed at exploring the needs of all stakeholders, including examining models of already existing field experiences at other universities.

Data from Elementary/Early Childhood Education and Secondary Education Seniors

A follow-up study of graduates conducted in 2001 documented candidate comments such as these, “I didn’t teach a lesson until student teaching” and “I didn’t get to do anything but observe in any of my internships.” By contrast, after four semesters of offering sophomore and junior blocks, survey responses of our students in elementary education and early childhood were very positive. In order to gather comparative data, we surveyed our first-semester seniors in

elementary and early childhood education, as well as those in secondary education concerning the nature of their internships prior to their pre-student teaching internship experience.

Early in fall 2006, we surveyed 23 seniors in the elementary ED406, Multidisciplinary Instructional Design and Assessment (ELED-ECE) and 23 seniors in the secondary ED425, Curriculum Design and Analysis (SECED), using an identical questionnaire. All students in these courses were scheduled to student teach during Spring 2007 and had completed most of their field experiences leading up to student teaching. We selected these two courses because the students had finished most of their field experiences and could provide a recent assessment of their effectiveness. Candidates in both groups indicated that they had experiences in high-need schools and had completed internships in Decatur District 61 schools.

In comparing the responses, we found that our secondary candidates completed an average of 78.2 hours of field experience, while the elementary majors had completed an average of 172 hours, thanks to their sophomore and junior blocks. When asked to list the activities in which they had engaged, 100% of the ELED-ECE students had observed teaching, taught lessons to small groups, taught lessons to whole classes, did one-on-one tutoring, and received feedback on their teaching from their cooperating teachers. Secondary majors were less likely to have been involved in testing than their elementary peers. The majority of SECED students also reported having taught small group or large group lessons and engaged in some tutoring.

Students were asked to list their most positive learning experiences in the field. The ELED-ECE group generated a great many responses, including many descriptions of their opportunities to teach lessons. They also mentioned their relationships with their host teachers, working with diverse populations, learning teaching strategies, working with special needs students, working with children of poverty, attending faculty meetings, and feeling part of the culture of the school. The SECED group generated fewer responses, but it is noteworthy that their most positive experiences were almost entirely focused on teaching lessons. Several mentioned having the opportunity to work with high-need students and beginning to understand the importance of understanding and of being sensitive to community and student diversity.

On first glance of the list of activities from Questions 2 and 3, it appears that both SECED and ELED-ECE groups had similar experiences and opportunities to teach. However, in the open-ended questions that asked for suggestions for improvement, we found evidence of qualitative differences in the field experience that supported the need for adding structure to the field experience. When we examined the answers to the question *"What could have been done to improve your field experiences?"* we found some significant differences. ELED-ECE students responses fell into three categories: concerns about the intensity of the sophomore block assignments and the organizational problems that occurred as part of a new program; their relationships with their cooperating teachers, with a few being convinced that their mentor- teachers did not really want to have an intern in the classroom because of the pressures of ISAT testing; and finally, practical concerns related to overload fees and assignments related to the block.

The SEC-ED responses were far more similar to one another, with the majority of the comments expressing concerns about not being able to teach very often, spending too much time observing or making copies, and wanting more feedback from their cooperating teachers. Following are some comments from the questionnaire:

"I wish I'd been able to do more things. My ED310 internship was pretty horrible! I felt like I didn't know the kids at all, nor the teacher, nor the material!"

"Include required tasks that have to be completed, in the event that the coop is just happy letting the intern sit and observe the whole semester!"

“Less time observing and more time working with students!”

“Tried to get my coops to let me teach something. That’s the one thing I haven’t done yet!”

“MAKE A SECONDARY BLOCK!!!! I wanted and needed more time in front of a classroom teaching! Observing only goes so far!”

Some responses to this question were quite positive, indicating that they had good cooperating teachers and that they had good experiences, but the majority of responses mentioned the desire for more actual teaching, or in some cases, *one* actual teaching experience.

When comparing the ELED-ECE with the SECED group, we found strong support for our initial assumptions that secondary education programs need a more intensive and longer field experience that allows students to understand the school culture and have more experience teaching lessons.

Data from Local Schools

We initially interviewed one middle school principal and one principal from the high school located close to our campus. All of Decatur Public School District 61 schools qualify as high-need schools. In addition to location, we targeted these two schools because we wanted to investigate the possibility of strengthening both middle and high school experiences. According to the 2004 MacArthur High School Report Card, 39.1% of the school’s students are considered “Economically Disadvantaged.” Student test scores did not make adequate yearly progress (AYP) and the school was placed on the State’s Early Warning Status. At Stephen Decatur Middle School 85% of the students are considered economically disadvantaged. For 2005-06 Stephen Decatur Middle School’s “Federal Improvement Status” was “Corrective Action” and the State Improvement Status was “Academic Watch Status” (Illinois School Report Card, 2005). Realizing that a sustained dialogue was needed for any college-school collaboration, we planned follow-up discussion on a possible proposal based on the interest level of each principal. Coincidentally, we found that each of the principals was relatively new to Decatur and not yet well acquainted with Millikin’s program. We anticipated that our follow-up meetings with each principal would deal more specifically with our proposal and the needs of the principals and teachers at the targeted schools.

Some common responses from the initial interviews with both principals gave us clear direction for our planning:

- The high school principal had just completed his first year as principal in Decatur and was less familiar with our field experience requirements than we realized. The middle school principal is new to his position as principal. Both had strong opinions about what sorts of experiences pre-service teachers should have, but they were not aware of the field experiences that our students typically have in the four years in our program. We realized that future discussions would need to provide more information about our programs in general, as well as an explanation of junior year courses and field experiences.
- Both principals were concerned about the development of dispositions in pre-service teachers who participate in their schools. One itemized the dispositional qualities that he expected in pre-service teachers in his buildings this way: Interns should love students and love the job. They should not come in with a chip on their shoulders, or think that they know it all and have nothing to learn from their mentor-teachers. The other principal mentioned dispositions in interns such as punctuality, being in the building when they are supposed to be there, and developing an awareness of the culture of the school and making an effort to fit into it.

- Both principals also itemized skills and/or experiences that they wanted candidates to have prior to their first year of teaching. These included: classroom management skills, planning and organization bell to bell; testing and authentic assessment skills, and the ability to access resources and use technology. Each expressed concern about expecting too much participation from student teachers in field experiences. One principal was skeptical that students in field experiences should work with only one teacher. The other was adamant that candidates should never be expected to teach more than four classes during student teaching. These views made clear that we needed to spend more time reviewing our program to clarify the level of preparation of junior secondary education candidates when they enrolled in their field experiences.
- It was clear from the interviews that the principals are very committed to collaborating with Millikin to provide useful learning experiences for our pre-service teachers and that they wanted to be certain our candidates came to them with clearly defined expectations and schedules and sufficient maturity to become part of the culture of their schools. We also found that the principals tended to think in broad terms—sweeping all field experience under the single umbrella of student teaching—rather than thinking of the internships as developmental, with increasing levels of responsibility over the four years.
- When questioned about the two models — a block at some mid-point of the semester in which our interns would come for an explicitly scheduled time, or a randomly scheduled 30-35 hour requirement — one principal expressed strong preference for the block and the other indicated that he could work with either model, but most important for both is that there be a good match between intern and mentor-teacher.

Because we hoped to set up our first pilot experience in a high school in close proximity to the campus, we conducted a follow-up discussion with the high school principal to enable him to get acquainted with the field placement coordinator, as well as with two School of Education faculty members from our action research project team. In preparing for this discussion, we realized that we needed a visual way to represent the differences in the present requirements and those we are proposing.

In our second visit to the school, we discussed mutual concerns, with the principal telling us about the training that he gives his teachers and the gaps he sees in preparation of new teachers. He expressed a willingness to work with us, this time more aware of how the junior experience relates to the other field experiences. We prepared Table 1: Field Experiences (please refer back to p. 7 in this paper) to explain in a graphic manner the shortcomings of our present program and the need for more cooperation.

Data Gathering from Private Universities/Colleges Similar in Size to Ours

Because data collection occurred during the summer, we decided to check websites of colleges and universities similar to Millikin to gather information on their field experience and student teaching programs, as well as to review teacher education and student teaching handbooks from institutions similar to Millikin.

Data Gathering from CTEP Representatives

Our action research project team included CTEP representatives from social science and biology. Because we wanted our work to encompass all of our secondary education programs, we also agreed to speak with the CTEP representatives in art, chemistry, physical education, language arts, and mathematics. Because a proposed junior block had been discussed previously in CTEP meetings, we agreed to simply explore the concerns that content-area representatives had regarding their major having a junior-level field experience of a more intense and structured nature, i.e., “If we were to schedule a block of courses on two days of the semester so that education students in your field could participate in a mid-semester block, what problems would you anticipate? And “what suggestions do you have to improve the junior level field experiences for your majors?”

Data Collected from Other Colleges and Universities

Because of summer schedules of our colleagues at other universities, this part of our data collection proved to be more successfully completed by looking at online field experience handbooks and university bulletins than by interviews. Of the colleges that we examined, we found each college tended to have a gradually increasing level of involvement as they approached their student teaching experience. Most moved from observation to teaching individuals and small groups to planning and teaching at least one whole-class lesson. By the junior year, most of them were requiring some whole-class lessons, planned in consultation with an instructor. For the most part, the cooperating teachers were the ones who evaluated the interns.

We found that there were variations of four different organizational models for field experiences:

- **Stand-alone internship** – Candidates are assigned to a teacher and school, given a number of hours to complete, and told to write a journal or do another project. The host teacher decides what the student will do and completes an evaluation form. Scheduling is up to the host teacher and the intern.
- **Structured internships** – Candidates sign up for a separate internship course that is scheduled for a specific block of time and are assigned a teacher and school. Faculty or graduate assistants hold on-campus meetings, and the host teacher evaluates the intern's performance.
- **Integrated block field experiences** – Candidates enroll in two or three required courses, and the field experience requirement is integrated into the requirements of the course. Each course requires specific field activities. In some cases, the faculty from the block courses or graduate assistants go to the schools to supervise the candidate's work.
- **Professional development school** – A specific school serves as the host school for a university program. University courses are taught on-site by university faculty and/or teachers from the schools. Assignments are developed jointly, and university faculty or graduate assistants visit the PDS classrooms to see the interns teach. Candidates are evaluated by university faculty and PDS teachers.

One of the universities that had graduate programs used graduate students as on-site supervisors of internships.

Data from Content-Area Faculty

In selecting members of our team, we deliberately invited representatives from major fields for whom the secondary block posed significant problems. School of Education requirements have asked for much flexibility from our colleagues in the content-areas in recent years. Because of the need to meet content-area methods standards, some content-area faculty have developed content-area methods courses. The need to fulfill literacy standards has led to another one-credit requirement in their curricula. As we brought up the possibility of a more intense field experience, our CTEP discussions were sometimes heated. Content-area specialists in science were understandably concerned about the changes required when the science certification curriculum was broadened to include numerous standards from a wider range of science content. Social sciences and language arts majors experienced major changes in their teacher education curriculum, as well. It is not surprising that School of Education faculty are sometimes perceived as the "problem children." One comment made in response to our SOE's assertion that we needed a junior block for secondary education summarizes why this summer effort was needed: a content-area faculty said "We have changed our major requirements; we've added required courses in technology and in literacy. We already give up a whole semester of coursework for student teaching! How do we keep making these changes and still maintain the standards of our major fields?" It is difficult to argue with content-area departments' desires to protect the academic integrity of

their majors. It is also difficult to say to students and/or parents that some majors are very difficult to fit into a four-year program.

Nonetheless, most content-area faculty supported the idea of having our candidates in the schools on a regular basis, and they expressed interest in seeing their students in teaching situations prior to student teaching. When we followed up with our colleagues in the content areas not represented on the grant team, they acknowledged that our candidates for secondary certification needed more intensive and regularly scheduled field experiences. Their primary concerns were with how such experiences would be scheduled.

Our team's original goal was to develop a pilot program that would improve the quality of the field experiences for junior-level secondary education candidates. Because we had experienced success with our sophomore and junior blocks for elementary education, we began with some preconceived notions of what we would do, but we also realized that the culture of high-needs secondary schools is different, and that there are greater scheduling limitations for our secondary education majors.

Building a Junior Field Experience that Addresses the Needs of All Involved

Our data gathering confirmed our initial assumptions. Our teacher education candidates in secondary education strongly support a need for a junior-level field experience that affords them greater opportunities to teach lessons and to become familiar with the culture of high-needs schools. The principals in our targeted high-need schools emphasized their desire to have interns arrive and leave at regular and consistent times and to have interns who were prepared with knowledge, skills, and dispositions. In our follow-up interview, the principal talked about the ideas that he sought to communicate to his teachers in faculty meetings and was pleased to hear that our candidates would be studying some of those same ideas in the courses that we teach during the junior year. Content-area faculty recognized the need for students to have experience transforming their content-area knowledge into learning activities appropriate to a Grades 6-12 curriculum. The stakeholders seemed to agree with our goals. The challenge now was to convert the ideal into a realistic and practical field experience.

With the conviction that the data we had gathered provided support for a field experience somewhat similar to the elementary sophomore and junior blocks, our team spent time discussing how to form the junior block. We identified two required junior-level courses and a senior level course: ED321, General Secondary Methods and Assessment and ED310, Creating Communities of Learners, and ED424, Teaching Literacy in the Content Areas. The three courses nicely complement one another, as well as meeting the goals of the junior field experience. ED321 looks at the process of instructional planning and assessment, while ED310 introduces learning theories that are useful in understanding the instructional design. The practical considerations of motivation, communication, classroom management, and discipline will be studied in the context of their field setting. At the same time, there will be excellent opportunities for students to learn firsthand about the need for ongoing literacy instruction.

TABLE 5. FROM PRESENT PROGRAM TO PILOT PROGRAM

	Present Program	Pilot Program
Junior Education Courses	ED310 Creating Communities of Learners (3 cr.) ED321 General Secondary Methods and Assessment (2 cr.)	ED310 Creating Communities of Learners (3 cr.) ED321 General Secondary Methods and Assessment (2 cr.) ED424 Teaching Literacy in the Content Areas (1 cr.)

Scheduling	Courses are scheduled independently	Courses scheduled in a consecutive block of time on Tuesdays and Thursdays.
Field Experience Requirements	ED310 requires a randomly scheduled 20-hour internship	A four-week long mid-semester internship scheduled to meet from 8:00 – 12:00 in a middle school or high school
Assignments during internship	Students interviewed C.T. about discipline and management	Planning and teaching three lessons Analysis of classroom community Literacy assignment
Communication with Cooperating Teachers	Principals in numerous schools identify cooperating teachers.	Principals in one or two schools will select cooperating teacher participants; MU faculty will meet before the program begins to discuss program goals and seek input from cooperating teachers.
Supervision of Field Experience	Cooperating teachers supervise	MU faculty will be in the field-site each day that the students are there; MU faculty will observe at least one of the students' lessons and provide feedback Cooperating teacher will provide written feedback on lessons and on students' performance.
Involvement of Content-area Faculty	None	When possible, content-area faculty will observe at least one lesson and provide feedback to students and cooperating teachers.
Field Experience Activities	Depended on the individual teacher	Some teaching is required, and active involvement is expected.
Evaluation of Internship Experience	Cooperating teacher completes an evaluation form	MU Faculty and Cooperating Teachers Collaborate in Assessing and Providing Feedback
Culture of the School	Juniors assigned to many different schools. Interns are "observers" of school culture.	Junior internships in high-need schools. Interns become part of the culture.
Decision Making	University-dominated	School/College Collaborative

The team spent time developing materials that can be used to explain the junior block and assist the principal in recruiting the teachers to participate in the mentoring opportunity. Appendix C includes a description of the Pilot Program for a Secondary Education Junior Block, which defines the roles and responsibilities of each member of the partnership. In addition, we prepared Table 6, which shows the characteristics of the proposed new field experiences.

Still under discussion is the challenge of what to do about scheduling conflicts. For example, if a science major or an art major has labs or studio classes that cannot be changed during both semesters of the junior year, what will happen? Previously, we might have said, "They'll have to change their class schedules so their students can enroll in the block." However, in small universities, individual courses serve many different populations, and the domino effect may mean that if we asked the art department to change the class for us, three other groups of students might be affected. Thus, we offer a compromise that we think might work. We will teach the courses as scheduled, with the possibility that at least one of them will fit in the student's schedule each semester. In addition, we offer a one-credit internship (ED370, Ed Internship III), in which the secondary education students with conflicts must arrange a specific time for their internships and complete the same tasks that their peers will be doing, but at a different time.

Findings and Discussion

We have developed a pilot program for our secondary education junior field experiences that we plan to implement during spring semester 2007. Our plan incorporated what we learned from our data, as well as from our team's brainstorming and subsequent discussions of the results of our data collecting and how best to serve our students.

Table 6: Field Experiences and Expectations for Secondary and K-12 Art, & Physical Education Majors

Year in School	Course	Placement Arrangement	Expected Activities
Freshman	ED120 Intro. to American Education	Field Placement Coordinator arranges "field trips" to six different schools. The block of time for the visit, including transportation is two hours (either 9:30 – 11:30 or 12:30 – 2:30)	<ul style="list-style-type: none"> Principal introduces the school to students and talks about unique characteristics of the school and the grade level. (20 minutes) Students go observe in one or more classrooms for 40 – 50 minutes Students journal about their visit
Freshman, Sophomore, or Junior (Secondary take 2)	ED170 Education Internship I – a one-credit course involving 30 hours of work in a school.	Field Placement Coordinator arranges placements for students in local schools. Students are to schedule with the teacher 30 hours of field experience in that classroom. Visits should be two-three hours per week	<ul style="list-style-type: none"> Students should serve as unpaid teacher's aide; Students should be assigned tasks such as tutoring individual students, working with small groups of students, grading papers, preparing materials.
Any year (optional)	ED172, ED Internship II	Completes one week of full-time internship in Off-campus school, Urban Life Center, or abroad	<ul style="list-style-type: none"> Assists teacher all day for a full week; Other tasks as deemed appropriate.
Junior Block	ED321, General Secondary Methods ED310, Creating Communities of Learners, ED424, Teaching Literacy in the Content-areas (Modified Professional	Students enroll in three classes that meet in a Tuesday-Thursday block of morning time (typically 8:00 – 12:00) Four weeks of mid-semester class time are spent in a local school with a teacher in their field. Millikin faculty visit classes to observe students teaching lessons and to talk with teachers about students' progress.	<ul style="list-style-type: none"> Students are expected to be actively involved in teaching activities. Assigned tasks will include teaching a minimum of three lessons that have been planned with their cooperating teacher. They will complete a Management Analysis. They will analyze the curriculum for that grade level (examine texts, Illinois Learning Stand.

	Development Model)		
Jr./Sr.	ED440 Early Adolescents (optional course)	Students seeking middle school certification complete this course. 20 hours in middle level.	<ul style="list-style-type: none"> Students assist teacher and become involved in activities with middle school students.
Senior Year, 1 st Semester	ED425 Instructional Design and Assessment	Field Placement Coordinator matches students to a cooperating teacher for their student teacher. Pre-student teachers will spend a minimum of 20 hours with their teacher.	<ul style="list-style-type: none"> Get to know teacher and students; Teach lessons in student teaching site Plan teacher work sample with the teacher.
Senior Year, 2 nd Semester	ED477/478 Supervised teaching, Middle School (477) or High School (478)	Student teaches spend 14 weeks student teaching, following the teacher's schedule. Gradually phases into teaching a full load for a minimum of 5 weeks; then co-teaches as part of a phasing-out process.	<ul style="list-style-type: none"> Plans, prepares, and presents instruction to all students, assessing students' progress, and planning remediation and accommodations when needed Teaches one full unit of instruction, with pre-assessment and post-assessment.

There are still important steps to take and problems to solve as we move forward. The proposal will be presented to the Committee on Teacher Education Programs at its October meeting. Because most members already have been consulted, we anticipate fewer problems in getting the proposal accepted. With optimistic expectations, we are beginning to address the logistics of getting the schedule completed for Spring 2007. Another step that must be taken is working with the building principals to select a core of teachers with whom we can collaborate during the remainder of the semester to make a smooth transition for the host school and for our students. As two of us presently teach our seniors, we also may provide time for them to suggest some improvements from their perspective.

It is worthwhile to reflect on what was learned from the three-way collaboration among education faculty, school district teachers and administrators, and faculty within the content-areas. As we move toward piloting our new junior block for secondary education students, we are acutely aware that there are no models that are universally appropriate for a particular school of education and that our model will continue to be refined as we implement our plans. Some obvious implications of our summer work can be applied to many schools of education.

As a result of having content-area faculty and a local school administrator/teacher on our team, we were reminded of the importance of involving all stakeholders in developing plans. Our local school representative on our committee provided insights into district needs, as well as information about how a larger university's mentoring program for pre-service teachers works at the school where he teaches. Our discussions with our target school principal helped us view the interns from his perspective, as well as from the perspective of his teachers. Discussions with the content-area faculty made us aware that what sometimes appears to be stubborn resistance to the needs of the School of Education is actually a desire to protect the integrity and quality of their major. On one level, we already knew this, but collaboration brings forth a clearer understanding.

Compromise is still the currency for problem solving. If we were to do an ideal internship for secondary education students, we would have them in the schools for full days. However, our discussions made it clear that full days are not practical for juniors. Thus, we planned for a three to four-hour block, and we know that we will need to help the cooperating teachers and our students to compress their lessons and projects into the part of the day in which our students are in the schools. Also, if some students cannot be scheduled for the block at the time we need, through careful collaboration with the content-area specialists and our field-site administrator, it is possible to develop an alternative experience.

In developing pre-service teacher field experiences, we will not be able to provide identical experiences, but we can collectively agree on the outcomes and on the qualities and experiences that we expect from our field experiences. When all stakeholders have a voice, we are more likely to be more aware of our common goals. The field experiences that we are proposing for the new block have support in the research, and the administrators at the target schools and the content-area faculty have had input into what we are planning. There will be variation across the disciplines and among the cooperating teachers but the goals of our field experiences will be more clearly defined.

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Promoting Social Justice in High-Need Schools, by Jeanne White Ed.D., Dan Jares, Brian Kahn Ed.D., Michael Lindberg Ph.D., and David Victor

Abstract

The authors explored the risks and rewards of teaching social justice issues in the classroom as a way to better prepare teachers for high-need schools. While not all aspects of social justice in the curriculum could be addressed in this project, current research was reviewed within the disciplines of math, science, and history related to genocide and the Holocaust. The research identified important resources for both instructors and teacher candidates. In addition, Elmhurst College Department of Education faculty members were surveyed to assess candidate preparation regarding social justice issues and strategies for diverse learners identified as successful in teaching high-need students. Resources and recommendations for future actions have also been developed.

Article

Social justice is a concept based on the premise that each individual and group in a society has rights of civil liberties, equal opportunity, fair treatment, and full participation in the educational, economic, institutional, and social freedoms valued by the community (Degano and Disman, 2006). The purpose of social justice education is to raise student consciousness about social justice issues through learning multiple cultural perspectives and critical evaluation of one's surrounding world and developing skills to recognize social injustice and a commitment to correct the injustices that exist (Lewis, 2001).

Although there are various definitions of "social justice," we limited the scope of our summer action research to the following areas and developed important teaching resources for each: 1) social justice in mathematics, 2) social justice issues in teaching the sciences, 3) teaching genocide and the Holocaust, and 4) sources for teaching nonviolent alternatives in history. This article provides a summary of our findings and resources in each area of our research and reports findings from our email survey of Elmhurst education department regular and adjunct faculty members during the first week of fall 2006 classes. Nineteen faculty surveys were returned and responses tabulated using SPSS (Statistics Program for the Social Sciences).

The survey results show that all faculty respondents are familiar with the term "social justice" and support teaching their students how to integrate social justice education into the curriculum. The most frequently used strategies considered to be effective in high-needs instruction mentioned: integrating technology (100%), addressing issues dealing with cultural diversity (95%), using inquiry-based learning/real-world problem solving (74%), and teaching strategies that address the needs of diverse learners (74%).

The results of this section of the survey suggest that both regular and adjunct faculty members are using a variety of effective teaching strategies. Perhaps surprisingly, all faculty members completing the survey were familiar with social justice as described in the survey. We were under the impression that the term is somewhat new or that our definition might be unfamiliar and are delighted to learn that all of the survey respondents are in favor of teaching their students how to integrate social justice issues into the curriculum. It should also be noted that there are some strategies, such as discussion of current events (42%) and using multiple intelligence theory (42%), where the low response rate indicates more attention may be needed in the department. These areas could be addressed in future faculty workshops.

The second part of the survey included a checklist to determine preferred faculty activities for promoting social justice. The most popular results were attending lectures and presentations, participating in workshops and obtaining resources to guide students with instruction on social justice issues (79% each). These three activities would appear to be the first activities to promote and implement among faculty on campus. Existing faculty groups might serve as

speaker and other resources. Workshops could be conducted at the department level in areas such as using multiple intelligences and incorporating current events into courses.

Education faculty members were also surveyed regarding student activities that might be developed to promote social justice in the department of education. The most popular choices were providing service learning opportunities (79%), organizing discussions with alumni currently teaching in high-need schools (74%), and assigning students field experience hours and student teaching placements in high-need schools (68% each).

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Appendix A: Social Justice Curriculum and Instructional Components and Challenges

Recent demographic data show that there is a significant disparity between the increasingly diverse nature of students attending today's schools and the background of the teaching force assigned to attend to these students' instructional needs (Zollers, et al, 2000). This reality creates an imperative for teacher education programs not only to increase teachers' understanding of the diversity they will face in the classroom and to meet the needs of this changing population, but to develop an awareness of how this diversity can impact their interaction with students and the environment of the schools in which they work (Salas, 2004). By systematically examining their beliefs relating to issues of race, class, culture, gender, equity, disability, diversity, and language, current and pre-service teachers will be better able to attend to the diverse needs of their students. One way to enhance teacher understanding of cultural and ethnic diversity is through social justice education. Such an educational orientation will not only increase teachers' efficacy, but will stimulate student learning while empowering students with the knowledge and skills to think critically and act constructively (Brooks, et al., 2005; Duncan-Andrade, 2005).

The challenge is how to foster and develop such a social justice orientation. Clearly, the effort needs to start at the pre-service level with students being given an opportunity to examine their perceptions of social justice, consider how their educational experiences impact these perceptions, and develop a better understanding of the connection between instructional practice and social justice (Lewis, 2001). It is also important for those associated with the education of pre-service teachers to explore their assumptions, understandings, and perspectives relating to social justice issues (Zollers, et al, 2000).

The second focus on social justice issues in the classroom concerns teachers in the field. Teachers seeking to address social justice issues have expressed concern that such a focus may result in their being punished in some way by administrators or challenged by parents. They may also experience isolation or a lack of support from colleagues as they seek to integrate social justice issues into the curriculum (Salas, 2004; Brooks, et al., 2005). There is evidence, however, that a curricular emphasis on social justice issues has a positive effect on students of low socioeconomic status and those who rely on teachers to bridge the gap between mainstream cultural and social perspectives and the cultural capital their students possess. By helping to bridge this gap, teachers can assist students in forming connections with their school/subject, thereby increasing the meaning of explicit curriculum content and improving achievement in the long run (Brooks, et al., 2005). Further, this social justice orientation has the added benefit of encouraging students not only to act on social justice-related issues, but to re-examine their own biases in the process, thus enhancing their efficacy as citizens and community members (Ryan, et al., 2005).

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Appendix B: Social Justice in the Subject of Mathematics

Mathematics should be taught so students observe and experience the purpose of each skill and activity in their learning. If concepts are connected to real-world problems and daily situations, students can easily see the purpose behind the concepts. Gutstein (2005) proposes that teachers provide students with opportunities to solve problems using their own experiences, as well as to solve the same problem from the perspective of various members of the class, school and society. Successful teachers “connect students’ knowledge of self with broader social and political realities (ibid).”

Gutstein contends that when teachers “weave social justice into the math curriculum and promote social justice ‘across the curriculum,’ students’ understanding of important social matters deepens (p. 3).” He has taught middle school mathematics for several years in a Chicago public school and now works with the first public high school for social justice, also located in Chicago. In his book, *Rethinking Mathematics: Teaching Social Justice by the Numbers*, more than 20 teachers from elementary, middle, and high schools and colleges contributed their experiences and benefits to students of a social justice approach to mathematics. The benefits include: recognition of mathematics as an essential analytic tool to understand and potentially change the world rather than a collection of disconnected rules; understanding of important social issues, ecology and social class; connection of math to their own cultural and community history; developing appreciation for contributions of diverse peoples and cultures; understanding their own power as active citizens with skills to become an active members in a democratic society; and gaining motivation to learn important mathematical concepts and applications.

Integrating math and social studies can increase understanding of social inequality. In exploring what is and isn’t fair in the world, students can become more interested in math concepts such as percentages and ratios. Susan Hersh and Bob Peterson (Gutstein, 2005) helped their students comprehend the issues of poverty and world wealth by gathering students on a playground map of the world, grouping them to represent the percentage of the world population represented by various countries, and distributing cookies to each group based on the ratio of population to wealth in each country. It immediately became evident to the students that there is a disparity in the amount of wealth a nation possesses, regardless of its population.

Gutstein (2003) conducted a two-year study in an urban, Latino middle school classroom in which he incorporated social justice into 17 real-world math projects. He collected data from students’ tests, daily work, homework, projects and journal entries. He also maintained a journal in which he recorded reflections and observations of the students’

work and dispositions, the classroom climate and culture, personal student interactions and classroom discussions. By the end of the second year, he found that students showed overwhelming evidence of making deeper critiques of mathematical analyses, raised important questions on related issues, created mathematical generalizations, constructed their own solution methods and became more confident of their mathematical ability.

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Gutstein, Eric. (2003). Teaching and learning mathematics for social justice in an urban, Latino school. *Journal for Research in Mathematics Education*, 34, 37-60.

Osler, Jonathan. (2006). *A guide for integrating issues of social, political, and economic justice into mathematics curriculum*. Available from Radical Math Web site, <http://www.radicalmath.org>

Appendix C: Annotated Bibliography-Social Justice in the Subject of Science

Barton, Angela Calabrese. (2003). *Teaching Science for Social Justice*. New York: Teachers College Press.

This book presents a comprehensive, practical overview of teaching science in a socially relevant manner, especially to marginalized populations of students. The primary focus is on strategies for making science education not only relevant, but empowering to populations of students who often do not see the applicability of science to their lives.

Catling, Simon. (2003). Curriculum Contested: Primary Geography and Social Justice *Geography*, 88, 164.

This source suggests a redirection of the approach to teaching geography at the primary level with a specific focus on a context of social justice for and based upon children's sense of fairness and in relation to environmental futures and global citizenship education.

Fahrenwald, Nancy L. (2003). Teaching Social Justice. *Nurse Educator*, 28, 222.

This article makes a strong case that social justice education is and should continue to be a major focus of nursing education. Social justice is one of the five core values of nursing education as put forth by the AACN.

Hayden, Gary. (2005). Relating Science to Society. *Times Educational Supplement*, 4618, 24-25.

This article uses social justice to make a strong case for the connection between science education and citizenship. It emphasizes the need for science education to be linked to issues of social justice, fairness and human rights.

Hodson, Derek. (1999). Going beyond cultural pluralism: Science education for socio-political action. *Science Education*, 83, 775.

This article examines the realities of multicultural science education. It specifically addresses the current deficiencies in such education which result in low performance, lack of interest and identification with science by minority students.

Rabow, Jerome, Jill M. Stein and Terri D. Conley. (1999). Teaching Social Justice and Encountering Society. *Youth & Society*, 30, 483.

This article describes an interactive learning strategy within the context of an under-graduate social psychology course which allows students the opportunity to experience first-hand social justice issues surrounding a specific “socially stigmatized” group (homosexuals).

Wellens, Janes, et. al. (2006). Teaching Geography for Social Transformation. *Journal of Geography in Higher Education*, 30, 117-131.

This article provides a strong case for the utility of teaching about social justice using geography. The case is made that geographic education has a long history of interest in issues of social justice and that many of these issues are expressed in intrinsically geographical ways – spatial distribution and causation of injustice and social, economic, political disparities for example.

Zembylas, Michalinos. (2005). Science Education: For Citizen and/or for Social Justice. *Journal of Curriculum Studies*, 37, 709-722.

A comprehensive review of two major works dealing with science education and social justice (Barton’s *Teaching Science for Social Justice* and Ratcliffe’s *Science Education for Citizenship: Teaching Socio-scientific Issues*), the author compares the teaching philosophies and strategies of each as they relate to “at-risk” students. The two principal philosophies are “scientific literacy for all (Ratcliffe)” and “science education for social justice (Barton).”

Appendix D: Social Justice Related to Genocide and the Holocaust

The United Nations Convention on Genocide took place in 1948 and provided the world with a definition of this phenomenon. Totten (1999) describes the convention as “a major milestone in the protection of basic human rights despite its extremely broad and compromised nature” (p.1). This event provides a starting point for examining how genocide in general and the Holocaust in particular are taught within the United States educational system. The author explains that the study and teaching of genocide is eclectic in nature, at best involving a relatively small group of scholars. More has been done to investigate and define the early warning signs of genocide than finding ways to prevent it and/or to intercede when the situation arises.

Totten (2001) suggests that the actual teaching of genocide and other social justice issues received impetus in the 1970’s and the strongest mandates in the 1990’s, as some states began to incorporate the Holocaust into the curriculum although few are actually required to do so. One of the earliest and most successful Holocaust education programs has been *Facing History and Ourselves* which began in 1976. Implemented at secondary and university level, this program prepares teachers to assist their students to confront their own prejudices, issues of tolerance, and their social and personal responsibility in dealing with such issues. Research on the efficacy of this program suggests that students exposed to the program have “increased awareness of moral reasoning, concern for social issues, and sensitivity for the plight of others” (p.311).

The program known as *Coming to Justice* designed by the Anne Frank House has as its mission, “to introduce teenagers to the concepts of justice and injustice in an international context, with a focus on the moral, legal, and instrumental dimensions of human rights and responsibilities” (p. 162). This four-day program, described by Van Driel (2005), engages students in discussions and other learning experiences to deepen their basic understanding of human rights issues as they exist in today’s world. The program is offered at the center in Amsterdam and has had participants from other countries including the UK and the United States. Some major elements of the program include: 1) students

reflecting on their individual definitions of justice and injustice; 2) group work involving discussions about justice; 3) a study of Anne and her family placed within the broader context of the Holocaust and the issue of responsibility; 4) introduction to the Balkan conflict; 5) attendance at an actual trial at the International War Crimes Tribunal in the Hague; 6) discussions and interactions with people who have been eyewitnesses to these conflicts; and 7) a revisiting of definitions of justice and injustice. The program (according to information on questionnaires) has had a profound effect on the participants, many indicating a desire to educate themselves at a higher level on the topic of human rights and justice.

References

Totten, Samuel. (1999). The Scourge of Genocide: Issues Facing Humanity Today and Tomorrow. *Social Education*, 63, 116-21.

Totten, Samuel. (2001). Holocaust Education in the United States. *The Holocaust Encyclopedia*, 305-312.

Van Driel, Barry. (2005). Coming to Justice: A program for youth around the issues of international justice. *Intercultural Education*, 16, 161-169.

Appendix E: Annotated Bibliography – Nonviolent Alternatives in the Subject of History

Ackerman, Peter and Jack DuVall. (2000). *A Force More Powerful: A Century of Nonviolent Conflict*. New York: St. Martin's Press. (also a video by the same name)

Several case studies from around the world including Russia, India, Poland, El Salvador, and Denmark.

DeBenedetti, Charles. (1984). Peace History, in the American Manner. *The History Teacher*, 18, 75-110.

This is a rather complete bibliography for resources as of the time of publication.

"Chapter 5: Forgotten History" in Michael N. Nagler, *America Without Violence: Why Violence Persist and How You Can Stop It*. Covelo, California: Island Press, 1982.

This is a brief chapter which discusses nonviolence in a few situations in United States history.

Juhnke, James C. and Carol M. Hunter. (2004). *The Missing Peace: The Search for Nonviolent Alternatives in United States History*. Kitchner, Ontario: Pandora Press.

This book illustrates a chronological look at American history with an alternative perspective on major events. It would serve as an alternative and/or companion core text for a survey American history course.

McManus, Philip and Gerald Schlabach. (1991). *Relentless Persistence: Nonviolent Action in Latin America*. Philadelphia: New Society.

Presents several post-WWII case studies such as Nicaragua, Argentina, Guatemala, and Bolivia. It could be used as a supplement in history or political science courses.

Meltzer, Milton. (2002). *Ain't Gonna Study War No More: The Story of America's Peace Seekers*. New York: Random House.

This source depicts a survey of conscientious objectors throughout American history.

Peacemaking. (Spring, 1994). *Magazine of History*, 8.

The whole issue has peacemaking as its focus.

Tollefson, James W. (1993). *The Strength Not to Fight: An Oral History of Conscientious Objectors of the Vietnam War*. Boston: Little, Brown and Company.

The title says it all.

Wink, Walter (Ed.). (2000). *Peace Is the Way: Writings on Nonviolence from the Fellowship of Reconciliation*. Maryknoll, New York: Orbis Books.

This is comprised of an anthology of writings from various authors arranged by topics such as interracial justice and nonviolence in action.

Video:

The Good War and Those Who Refused to Fight It (60 min. 2002).

This video presents an alternative perspective on World War II by looking at the conscientious objectors who refused to fight in the "Good War."

Appendix F: Survey

Course(s) Taught _____

Adjunct faculty _____ Full-time faculty _____

Social justice is a concept based on the belief that each individual and group in a society has the right to civil liberties, equal opportunity, fair treatment, and participation in the educational, economic, institutional, and social freedoms valued by the community.

The purpose of social justice education is to raise students' consciousness about social justice issues, to learn about multiple perspectives, to critically evaluate the world around them, to develop the skills to recognize social injustice, and to commit to correcting injustices that exist.

I am familiar with the term *social justice*

Yes No

I address social justice issues in my course(s)

Never Sometimes Often

I discuss/use assignments about current events in my course(s)

Never Sometimes Often

I address issues dealing with cultural diversity in my course(s)

Never Sometimes Often

I use inquiry-based learning (real world problem solving) in my course(s)

Never Sometimes Often

I discuss/use cooperative learning methods in my course(s)

Never Sometimes Often

I integrate technology into my course(s) (please list _____)

Never Sometimes Often

I discuss/use multiple intelligence theory in my course(s)

Never Sometimes Often

I discuss/use teaching strategies in my course(s) that address the needs of diverse learners
(over)

Never Sometimes Often

I discuss/use assessment strategies in my course(s) that address the needs of diverse learners

Never Sometimes Often

I use a Constructivist approach to teaching and learning

Never Sometimes Often

I am interested in teaching my students how to integrate social justice education into the curriculum.

Yes No

I am interested in the following faculty activities for promoting social justice: (Please check all that apply)

____participating in book talks with other faculty members (with a possible stipend)

____attending lectures/presentations

____attending panel discussions with experts

____participating in workshops on how to incorporate social justice activities into campus courses

____obtaining social justice resources to use with students

____obtaining resources to learn more about social justice issues

____participating in film discussions

I am interested in the following student activities for promoting social justice: (Please check all that apply)

____film discussions

____assigning students to local high-needs schools for field experiences followed by reflection and discussions of experiences

____assigning students to local high-needs schools for student teaching

____panel discussions with alumni currently teaching in high-needs schools

____giving credit for attending lectures/films/panel discussions relating to social justice

____service learning opportunities that address social justice issues