Welcome to the 30th Anniversary Volume of *Thresholds in Education*

There are places in the world that are neither here nor there, neither up nor down, neither real nor imaginary. These are the in-between places, difficult to find and even more challenging to sustain. Yet they are the most fruitful places of all. For in these liminal narrows a kind of life takes place that is out of the ordinary, creative, and once in a while, genuinely magical. We tend to divide life between mind and matter and to assume that we must be in one or the other or both. But religion and folklore tell of another place that is often found by accident, where strange events take place, and where we learn things that can't be discovered in any other way.

Thomas Moore

In the summer of 1973, several professors from the former Department of Secondary Education at Northern Illinois University discussed the possibility for an education journal that united secondary school practitioners and university professors in dialog. They talked about problems, experiments, research, and new developments. This group, under the leadership of Dr. Leonard Pourchot, proceeded to elect a board of directors, establish a non-profit foundation, solicit charter members, elect a managerial staff, and set the wheels in motion for a long range goal of publishing the first issue of *Thresholds in Secondary Education* in February, 1975 (Maple, 1975). Thirty years later the College of Education and the Thresholds in Education Board still carry on this endeavor.

The word "thresholds" best represented the intention to explore ideas and share viewpoints which could lead to new educational advances while respecting achieved values and knowledge bases. The *Thresholds in Secondary Education* journal would stimulate thinking, influence education practices, inform, and inspire (Pourchot, 1975).

Over the years, *Thresholds* has broadened its focus beyond secondary education to include dialogue between educational theorists and practitioners from diverse locations. In 1977, the journal was retitled *Thresholds in Education*. Today it remains dedicated to the examination and exploration of new educational inquiries, theories, viewpoints, and program innovations.

The title of the journal was well chosen and more than ever is relevant to the needed forum among educators in these complex times. The threshold is a structure familiar to all cultures from ancient times. Taken literally, it is the traverse beam of a doorframe. But it also stands as a metaphor for moving through time, place, and process. Thresholds are crossing-over places where we venture from the securely known to the uncharted spaces. In Native American tradition, these are places of power (Bruchac, 2000). To the ancient Greeks, the threshold was considered to have a dual nature as both a barrier and a point of transformation—a duality "embodied in the god Hermes, who functioned as a guardian of thresholds and as a guide for those who crossed them" (Hoffman & Hoffman, 2000, p. 11). This same idea is found in the deity Legba of West African origins, revered in vodoun, who inhabits threshold sites including crossroads or intersections. As a divine intercessory, Legba serves as a "guardian of and a guide across the borders of the world of the living, the dead, and the *lwas* (the gods)" (Conner, 2000, p. 71). Thus, the threshold—always located between inside and outside—is "akin to the Japanese idea of *ma*, a word variously translated as interval, gap, space, opening (Thorpe, 2000, p. 98).

Perhaps the freshest meaning is as a symbol of new beginnings. We are at the threshold of a new millennium: a place and time that holds a sense of possibility, peril, and promise. But since we can see only so far into the future, we may perceive the unknown as a void shadowed with the anxiety that the unknown can provoke. Guides are therefore always necessary. As educators, we can become the best guides of one another.

Such transitional places, as Moore describes them, are neither here nor there . . . difficult to find and more challenging to sustain . . . but these are the very places

where we learn things that can't be discovered in any other way. *Thresholds in Education* has sustained this insight for 30 years, often with difficulty. The source of its vitality as a guardian of the dialogue between theorists and practitioners has been its commitment to the integrity of both kinds of work. *Thresholds* has also been a guide for those readers who are crossing over from one level of learning to another: from theory to practice/practice to theory.

The journal has remained small and agile. Its content has been varied, marking points of transition in the educational landscape. It has examined all dimensions of the educational enterprise. It keeps crossing over into new territory. It has kept itself open to the possibilities that were beyond the site of present vision. This issue continues that openness as the writers lead us to examine the changing terrain of accountability imperatives—both the promise and the perils that may await.

It is with pleasure and pride that we welcome you to this 30th anniversary year. Our colleagues of 1973 may never have imagined fully the thresholds we would need to approach and perhaps cross. But their vision for the journal is still enacted. We pledge to you, our readers, a renewed commitment to maintaining this journal—a place in time and space for discovery, discussion and debate. We welcome your comments and critiques.

—The Thresholds in Education Foundation Board

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Introduction

Building a Community of Scholars, Teachers, and Leaders in Service: The Department of Teaching and Learning in Context

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In the classic small book, *The Saber-Tooth Curriculum*, Harold Benjamin (1939) relates a tongue-in-cheek tale of educational change, examining the conflicts between progressive education and traditional approaches. The setting of the story is a Tijuana bar, and involves a conversation between a student, Abner Peddiwell and his former professor, Raymond Wayne on the nature and purpose of education. This themed issue of *Thresholds* shares a similar genesis, as a group of NIU faculty members were discussing their perspective on issues in education during a faculty social at a Tijuana-themed bar in DeKalb, Illinois, during the Fall of 2002. Whereas the characters of Peddiwell and Wayne played their roles well, arguing their contrasting positions on the purpose of education, the Northern Illinois University faculty members found many areas of commonality in their philosophy. As will be seen in the articles to follow, they share much in their responses to broader pressures being brought to bear on education. One value of this exercise for the faculty involved has been to consider the identity of the department as a whole. A faculty of nearly twenty-five professors and committed instructors represent six programs and a variety of specialties. Composing the articles gave faculty members an opportunity to collaborate and, most importantly, to discuss thoughtfully the relationships among their programs, the other programs in the department, and how the department's mission and vision continue to relate to practitioners and students in the field. While the pieces submitted for this issue of *Thresholds in Education* provide some answers and insights, they also pose a number of ongoing questions.

The various pieces included here show how the programs in the Department of Teaching and Learning are coming to terms with the ongoing movement to embrace a more standards-based approach to teaching.

Broadly conceived, the articles share a number of themes. First and foremost, the various pieces included here show how the programs in the Department of Teaching and Learning are coming to terms with the ongoing movement to embrace a more standards-based approach to teaching. The role of standards in the P-12 setting has been well documented; at this juncture, faculty and programs in higher education are experiencing many of the same pressures in ways that are novel to faculty members.

In order to understand where we as a department are going, it's critical to begin with a snapshot of how

we got here. It began in 1983 when the Commission on Excellence in Education declared that "our nation was at risk" primarily because "the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a nation and a people" (National Commission on Excellence in Education, 1983, p.1). Over the past two decades several iterations of the Elementary and Secondary Education Act of 1965 (ESEA) have been reauthorized, currently as No Child Left Behind (NCLB) 2002, and a myriad of seminal reports have been written to address the "risk" from a variety of perspectives.

A Nation at Risk changed the nation's focus on education from an emphasis on "seat time" and *quantity* of courses to the *quality* of curriculum and instruction and their results. Attention turned to the commonsense notion that student efforts and achievement are directly affected by expectations set by parents, teachers, schools, and the society at large (McLaughlin & Shepard, 1995).

Shortly after our educational system was deemed "at risk" two reports were released: *A Nation Prepared: Teachers for the 21st Century* by the Carnegie Forum on Education and the Economy (1986) and *Tomorrow's Teachers: A Report of the Holmes Group* (1986). These reports included recommendations from pre-service teacher preparation and certification through in-service teacher professional development and advanced certification that could be carried out by a wide range of stakeholders across the educational arena.

Goals 2000: Educate America Act (1994) continued the push for systemic reform by encouraging states and communities to participate in a results-focused comprehensive effort of improving education and ensuring that *all* children reach high academic standards: The driving force being standards-based reform that leads to improved teaching and learning with the ultimate goal of high student performance. The National Commission on Teaching & America's Future (NCTAF) followed with *What Matters Most: Teaching for America's Future* (1996). The key point in this report was that teacher quality combined with schools organized for success is the number one *indicator* of student achievement. This report offered a "blueprint for recruiting, preparing, and supporting excellent teachers in all of America's schools with the knowledge and skills they need to teach so that all children can learn . . . [and] the goal of ensuring that all students had a caring, competent, and qualified teacher for every child" (p. vi).

The world of education is currently operating under the most current iteration of the ESEA—NCLB. This legislation is pushing for highly qualified teachers in every classroom by 2005-6. According to NCLB, teachers are considered to be "highly qualified" if they (1) have a bachelor's degree; (2) have full State Certification; and (3) have demonstrated subject-matter competence in the area(s) taught (ISBE, 2003). NCTAF's recently released report, *No Dream Denied: A Pledge to America's Children*, reiterates the requirements of NCLB and recommendations made in its earlier report by proposing three strategies: to organize every school for teaching and learning success; to insist on quality teacher preparation, program accreditation, and licensure; and to develop and sustain professional rewarding career paths for teachers from mentored induction through accomplished teaching.

In Illinois, Northern Illinois University faculty members have been proactive in addressing these broader issues within the context of their programs and the classes they deliver. As the articles show, the challenges of moving toward a more standards-based approach to preparing educators are included as an element of each of the programs and courses delivered in the Department of Teaching and Learning. Whether the university students are graduate students or undergraduates, work in regular or special education classrooms, or serve as classroom teachers or school district administrators, the role of standards looms large. The article by Professors Lieberman and Wilkins on "The Education and Future of Curriculum Leadership" lays out the broad themes currently taking place in their discipline and provides an historical context from where today's current standards movements have come. The relationships among NCATE, IPTS, and NPTS—in conjunction with ISBE standards, NCLB, and Northern Illinois University's own Conceptual Framework for Education, as described by Lieberman and Wilkins, are further developed in detail through the articles submitted by faculty members in the department's other programs.

Early Childhood Education takes on the challenge of sharing the philosophical underpinnings of their discipline—which fall within the standards-based relationships shared by Lieberman and Wilkins—is developed in detail by Professors Dunn and Mutuku.

The stress they place upon the needs of the individual in their article, "The Promise of Developmentally and Culturally Appropriate Practice in the Global Village," resonates appropriately with Dr. Chandler's work describing her field in "Early Childhood Special Education." Just as many current advances in science are at the intersection of traditional domains of human interest—such as biology and physics offering the newer discipline of biophysics—Professor Chandler's work operates at the intersection of early childhood education and special education.

"Special Education in the State of Illinois: What's New?" by Toni VanLaarhoven, Gail Adams, Sharon Wyland, Lynette Chandler, and Jodi Sticken provides an overview of the specific challenges their discipline is accommodating based on not only standards-based considerations but legal directives as well. Their work provides an excellent overview of the needs of the larger public in program development and faculty research efforts working to inform their practices as both scholars and teachers.

The article "Science-Technology-Society: Promoting Reform in Elementary Education" by King and Henning offers background on the interdisciplinary curricular model called Science-Technology-Society. They examine practices at the key intersection of the university and the public schools as they develop interdisciplinary curriculum with their preservice students. With the current assaults on some parts of the elementary curriculum (social studies being left behind as a part of NCLB), King and Henning examine how to maintain the important experiences throughout the curriculum by having students preserve them as parts of interdisciplinary curriculum.

As the reader will discover, the themes present in the various articles developed organically: the initial intention was to describe the current state of the practice within the department and to communicate the mission of the department as it was carried out in the various programs of study. As the pieces were examined in total, however, the larger and more urgent issue of how to function as a scholar in an era of legislated accountability became more and more evident—and the parallel challenge of how to "do what is right" for the profession despite these demands—was heartening. We invite you to explore the challenges of teacher education at the start of the twenty-first century.

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The Evolution and Future of Curriculum Leadership

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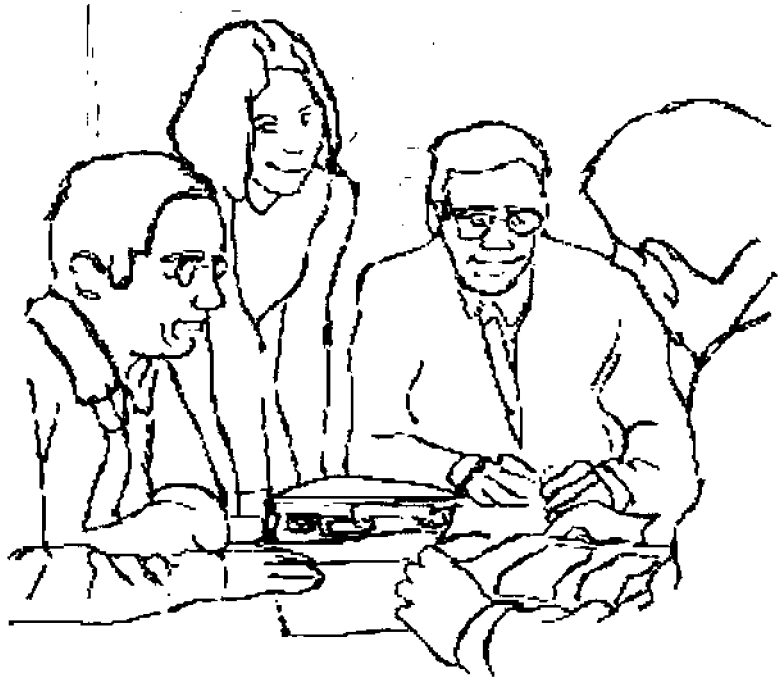

Since the release of *A Nation at Risk* in 1983, the world of teaching and learning has steadily moved toward a standards-based approach in three areas: content knowledge for students, assessment, and teacher preparation and professional development. Within Northern Illinois University's Department of Teaching and Learning, faculty in the Curriculum Leadership graduate program recently revamped the master's degree to include a Certificate of Graduate Study in Advanced Teaching Practices because of the increasing need for standards-based professional development. Since the early 1980s, legislative agendas and reports have reshaped teacher certification and professional development—more so than any other time in the last century. The purpose of this paper is to describe the evolution of key pieces of legislation as well as recommendations from seminal reports that brought about changes to NIU's curriculum leadership program, as seen through the lens of the policy/change cycle.

The Change/Policy Cycle

Change and policy-making is a deliberate process "that evolves through cycles, with each cycle more or less bounded, more or less constrained by time, funds, political support, and other events. It is also a process that circles back on itself, iterates the same decision issue time and again, and often does not come to closure" (Rist, 1994, p. 546). The five general phases of change are initiation/agenda setting, policy formulation, policy implementation, policy evaluation and accountability, and policy change and termination (Dunn, 1994; Fowler, 2000; Fullan 2001; Lester & Stewart, 1996). What follows is a discussion of each

phase using the legislative and seminal reports that lead to the redesign of the master's degree program.

Initiation/Agenda Setting

In recent years, there has been a heightened interest in how policy issues get on the agenda and why some are more likely to get on than others. A number of agenda setting models have been developed since the early 1970s (see Cobb & Elder, 1972; and Cobb, Ross, & Ross, 1976). However, the most extensive work on this topic is by Kingdon.

In *Agendas, Alternatives, and Public Policies*, Kingdon (1995) sought to answer the question, "What makes people in and around government attend, at any given time, to some subjects and not to others?" (p. 1). He found that, although the top policymakers are central to agenda setting, they have less control over the agenda's implementation and the alternatives considered. Instead, many groups outside of government, including interest groups, researchers, academics, consultants, media, and the public are often the ones responsible for generating alternatives and implementing policies. According to Kindgon, the formation and refining of policy proposals is a "primeval soup" in which ideas confront, compete, and combine with each other, forming combinations and recombinations. In the early 1980s, the seminal report, *A Nation at Risk*, started a "standards-based soup" that would set the agenda for years to come. This report stated in brief but dramatic, sobering terms:

> Our Nation is at risk. . . . If an unfriendly power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war. As it stands, we have allowed this to happen to ourselves. . . .We have, in effect, been committing an act of unthinking, unilateral disarmament. (p. 5)

Of the four recommendations cited in the report, one specifically addressed strengthening the teaching profession through higher standards for preparation and professional growth. Many education reports immediately followed. *A Nation Prepared: Teachers for the 21st Century* (Carnegie Forum on Education and the Economy, 1986) added new ingredients and flavor to the "standards-based soup." In order to improve the teaching profession, new, more demanding standards needed to be set and accomplished. Overall, the Task Force's recommendations were to attract more able people to teaching, to prepare them better, and to provide them better professional status and corresponding pay incentives.

Since the early 1980s, legislative agendas and reports have reshaped teacher certification and professional development—more so than any other time in the last century.

In 1986, the Holmes Group, unlike the membership of the two previous commissions, was composed of education deans interested in alternative ways of involving major research universities in improving the quality of teacher education. They developed five goals, including creating standards by which to measure novice, competent, and high level professionals and advocating professional development schools. Both the Holmes and Carnegie reports considered national control of the certification process as the best way to achieve standardized teacher certification. National certification would provide a forum for increased participation by professional education organizations in establishing standards and certification procedures.

Policy Formulation

The next stage in the process is policy formulation "where pertinent and acceptable courses of action for dealing with some particular public problems are identified and enacted into law" (Lester & Stewart, 1996, p. 81). When an item has been placed on the agenda, a number of stakeholders come together to generate alternatives and to choose between them.

The expected result of policy formulation is a plan to address an issue. For example, in response to the recommendations by the Carnegie Forum and the Holmes Group, the National Board for Professional Teaching Standards (NBPTS) was created in 1987. The mission of NBPTS was to establish high and rigorous standards for what teachers should know and be able to do and to create a mechanism to assess accomplished teaching. As of 2002, NBPTS has certified 23,930 teachers; 570 in Illinois.

Another national initiative, Goals 2000: Educate America Act (PL 103-227) (1994), established education goals and standards to be attained through state and locally planned initiatives. One of the goals specifically focused on teacher preparation and professional development.

> By the year 2000, the Nation's teaching force will have access to programs for the continued improvement of their professional skills and the opportunity to acquire the knowledge and skills needed to instruct and prepare all American students for the next century. (Sec.102)

Although institutions of higher education were not direct recipients of federal funds made available through the law, they were intended to be key players in the school reform effort. Institutions committed to working in collaborative partnerships with K-12 schools received funding.

Two years later, The National Commission on Teaching and America's Future (NCTAF) released its report, *What Matters Most: Teaching for America's Future*. One of the key findings was that students have the right to be taught by competent teachers, and teachers should have the right to high-quality preparation, induction, and professional development. The report recommended using standards developed by the NBPTS as the cornerstone for teacher development and evaluation. Similar to the Holmes Group report, this approach offered a connection to teachers' work with their students, a link to the concrete tasks of teaching, a focus on problem-solving, a research base, and continuation over time through sustained conversations. Ongoing professional development could be incorporated into teachers' daily work through joint planning, research, curriculum and assessment work, study groups, and peer coaching.

In 1996, the Illinois State Board of Education (ISBE) responded to national recommendations by drafting the Illinois Framework for Restructuring the Recruitment, Preparation, Licensure, and Continuing Professional Development of Teachers. The framework included a standards-based teacher preparation and accountability process, a multi-tiered certification system, professional development expectations for certificate renewal, induction experiences for novice teachers, and alternative routes to the profession. Since February, 2000, teachers entering the profession are issued initial teaching certificates valid for four years. Teachers with four or more years of experience or a valid teaching certificate are issued standard certificates valid for five years. Upon receipt of the standard certificate, they must complete and receive approval of a professional development plan that includes goals to complete activities that advance the holder's knowledge and skills consistent with "teacher standards and content standards, 'state priority areas,' [and/or] a school improvement plan in order to maintain the standard certificate" (ISBE, 2001, p. 3). For example, they can accumulate eight semester hours of coursework from an accredited college or university or 24 Continuing Education Units (CEUs) or 120 Continuing Professional Development Units or any combination of the above. However, if a teacher completes the National Board certification process, (s)he will have satisfied the requirements for the five-year certification cycle. The third tier is the Master Teaching Certificate—this certificate is only issued to teachers who achieve National Board certification (ISBE, 2001). This certificate is valid for 10 years, as is the certificate issued by NBPTS.

Over the past year, faculty in the Department of Teaching and Learning's Curriculum Leadership program have begun to stir the "standards-based soup."

The No Child Left Behind Act (NCLB) (2002) is the latest ingredient added to the "standards-based soup." The Act is the most sweeping educational reform since the passage of the Elementary and Secondary Education Act (ESEA) in 1965. In the area of professional development, this act recommends that more focus be placed on increasing the numbers of

individuals entering the K-12 teaching profession as well as offering new opportunities for professional development for current educators and administrators. The ISBE's definition of professional development is aligned with those put forth by the U. S. Department of Education. Included in this definition is follow-up training for teachers by forming partnerships with institutions of higher education to design and implement activities that improve and increase their content knowledge, thereby helping students meet challenging, state, academic content standards and student academic achievement standards (ISBE, n.d).

Policy Implementation

Policy implementation is "the stage of the policy process immediately after the passage of a law . . . in which various actors, organizations, procedures, and techniques work together to put adopted policies into effect in an effort to attain policy or program goals" (Lester & Stewart, 1996, p. 97). Over the past year, faculty in the Department of Teaching and Learning's Curriculum Leadership program have begun to stir the "standards-based soup" by developing and implementing a Certificate of Graduate Study (CGS) in Advanced Teaching Practices that aligns with the NBPTS, five core propositions:

1. Teachers are committed to students and their learning.
2. Teachers know the subjects they teach and how to teach those subjects to students.
3. Teachers are responsible for managing and monitoring student learning.
4. Teachers think systematically about their practice and learn from experience.
5. Teachers are members of learning communities.

(See Table 1.)

The ISBE recognizes the rigor of the National Board process. Therefore, in Illinois, teachers who complete the process satisfy the requirements for their five-year re-certification plan (standard certificate). Only teachers who have *achieved* National Board certification are awarded the Master teaching certificate. In an ongoing effort to align professional development with NCLB, ISBE, and NIU's Conceptual Framework—knowledge, practice and reflection—faculty in the Curriculum Leadership program have created the CGS to provide professional development opportunities for many teachers in the Northern Illinois region.

Course	Proposition Components Addressed
Connecting Curriculum and Instruction to National Teaching Standards (TLCI 515)	Overview – Propositions 1-4
Creating Learning Communities (TLCI 512)	Proposition 5
Field Based Instruction TLCI 640	Theory into Practice
Independent Study (TLCI 586B/686B)*	Propositions 1-5
Elective – related to certification area or EPS 506, 506, 605 or 608	Proposition 2 Proposition 1

Table 1. Relationship between courses and propositions.

The CGS in Advanced Teaching Practices is designed for teachers who wish to improve their knowledge and skills in understanding and engaging in the National Board Certification process. Students seeking this certificate must file an application with the Curriculum Leadership faculty and then develop a program of studies with an adviser. The CGS requires 15 semester hours of coursework that align with the five core propositions.

During Spring 2003, one faculty member collaborated with five National Board certified teachers (NBCTs) to design and implement the introductory course, TLCI 515 (see http://www.cedu.niu.edu/tlrn/courses/tlci515.html). We piloted the course and collected baseline data during the Summer of 2003.

Policy Evaluation

There are four types of assessment used most often in evaluating policy: process evaluation, impact evaluation, policy evaluation, and meta-evaluation. Of those, two were utilized to evaluate the CGS as described in the previous section, process evaluation (how the program was delivered), and impact evaluation (the end results of the program).

Two instruments were used to collect "process evaluation" data: a survey and a reflection paper. The survey used a pretest/post-test design, including Likert-type and open-ended questions, to assess the student's understanding of the NBPTS process and its influence on their professional practice. A preliminary analysis of the data revealed that at the beginning of the course, only six of the fifteen students indicated that they were "somewhat knowledgeable" about the NBPTS certification process, and only one-third of the students felt

As I read each standard, I found myself feeling somewhat relieved that I was doing some things right.

they were "somewhat" familiar with the standards in their area of certification. At the end of the class, the post-survey results revealed much more favorable responses. All 15 students were either "somewhat knowledgeable" or "very knowledgeable" about the certification process, and every student reported being either "somewhat" or "very" familiar with the standards in their respective certificate area.

Each certification area has a unique set of standards; however, there are several that cut across all certification areas: knowledge of students, multiple learning strategies, assessment, classroom environment, diversity and equity, and reflection. At the beginning of the course, students were asked to what degree they designed and implemented lessons to meet each of these standards. Responses ranged across all Likert-scale categories: "always," "most of the time," "sometimes" and "rarely." They were also asked to indicate to what extent they believed their current professional practice exemplified the six areas common to all certification areas. Initially, responses were equally grouped between "most of the time" and "sometimes." By the conclusion of the class, the responses for both questions had shifted to a combination of "always" and "most of the time."

During the course, one activity was to deconstruct each standard, identify ways in which the ideas exemplified in the standard were evident in the classroom, and identify areas for improvement. By the end of the course, all of the students were more positive about the potential for integrating the six standards into their professional practice. One student commented on how powerful the process was for her in deconstructing the standards. It not only validated what she was doing in the classroom, but it allowed her time to collaborate with peers on alternative strategies and self-reflection.

Upon completing the course, students submitted a reflection paper on how the knowledge gained in the class had the potential to influence their teaching and learning. Below are the questions that were asked and some representative responses:

1. How did deconstructing the standards help you think differently about teaching and learning?

   Over the semester, I deepened my knowledge about several National Board standards. In deconstructing these standards, I further developed my understanding of what it looks like to be an exemplary teacher. As I read each standard, I found myself feeling somewhat relieved that I was doing some things right, but more importantly, I became aware of specific areas that I needed to work on in order to improve my instruction.

2. How do you anticipate that this class will influence your professional practice?

   Understanding what needs to be improved is only the first step in actually refining professional practice. Now that I am aware of the standards for good teaching, I think I will be more attuned to using them as a framework for my personal professional practice. During this upcoming year, I will be mentoring a student teacher. The information that I have learned from this class, both in the content of the course and the subsequent discussions with my colleagues, will help me to improve my teaching and thereby enhance my experience for my student teacher.

3. What might you do now that you didn't do before?

   The two areas that I know are important and were reinforced in this class were assessment and reflection. Although I do complete formal assessments, I want to work this year to take anecdotal records to gain a better understanding of my students' learn-

ing and to effectively differentiate the curriculum to meet their individual needs.

Additionally, I plan to use more reflective practices. In this class, I learned that it is a valuable tool for improving instruction and fostering success among students. Reflecting on my lessons will help me to achieve my professional goals and thereby facilitate professional development.

The "impact evaluation," the second assessment tool selected to evaluate the CGS, will be long-term and on-going. It is based on the number of students who enroll in the CGS, complete the CGS, and engage in and/or achieve National Board certification.

Policy Change and Termination

Policy change is "the replacement of one or more existing policies by one or more other policies" (Lester & Stewart, 1996, p. 136). According to Anderson, "policy change can take any one of three forms: (1) incremental changes in existing policies; (2) the enactment of new statutes in particular policy areas; or (3) major shifts in public policy as a consequence of realigning elections" (1990, p. 402). A fourth option not mentioned by Anderson is the termination of a policy when it is no longer a priority on the policy agenda.

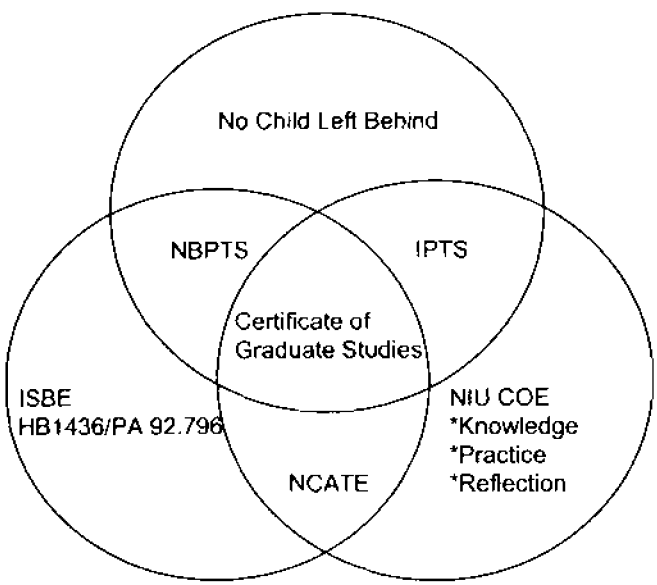

Figure 1. Relationship between and among multiple program standards.

Based on the data from the pilot study, incremental changes to the CGS will occur. For example, the course was taught by five NBCTs. Students commented that this was confusing and lacked cohesion. Although we believe that NBCTs should be a part of the teaching process, in future classes, no more than two instructors will be used. Other recommendations included offering this course during the school year when teachers had easy access to student work and resources, providing pre-class information on retrieving the standards, and more time for reflection. As the CGS evolves and grows, evaluation will be a regular part of the implementation process.

Conclusions/Next Steps

We are currently teaching and learning in a standards-based era—including standards for professional development. The call for professional development began with the release of *A Nation at Risk* (1983), and continues 20 years later with the passage of NCLB. The stakes were raised in 1996 when Illinois passed legislation requiring its teachers to engage in professional development activities beginning in 2000. Recommendations for completing professional development in Illinois have varied. However, one common thread between the requirements for the Standard and Master teaching certificates remains the focus on engaging in and achieving National Board certification.

Our mission—and we've chosen to accept it—is to provide professional development opportunities for teachers in the larger northern Illinois region. The CGS is one viable vehicle through which teachers can participate in professional development that integrates requirements aligned with national and state standards and that satisfies the re-certification requirements put forth by ISBE.

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The Promise of Developmentally and Culturally Appropriate Practice in the Global Village

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During the last few years, the field of early childhood education has undergone changes. Some of these changes have originated from within the field as educators question their own historical foundations. Other changes have been in response to national and global conditions that affect the needs of children. In an effort to respond to these changes in the field, the early childhood faculty in the Department of Teaching and Learning at Northern Illinois University have developed a new program track for the preparation of early childhood teachers.

History and Hope

Traditionally, early childhood education has been deeply grounded in developmental psychology (a legacy from the nursery school movement) and progressive education (a legacy from the kindergarten movement). As early childhood educators, we are responsible for fostering all aspects of the child's development: physical, social-emotional, moral, and cognitive (Feeney & Kipnis, 1998). We affirm the child's right and need to play (Bredekamp & Copple, 1997). We have frequently embraced autonomy as the primary aim of education (e.g., Kamii, 2000). We see ourselves as child advocates and parent educators with an obligation to extend our influence beyond the classroom (Feeney & Kipnis, 1998). The traditional purposes and practices of early childhood education differ in focus from the traditional practices of public schooling because they developed within a different social context. Until recently, early childhood educators have experienced very little of the political and institutional pressure that has shaped, and frequently shifted, the mission of the public schools.

As early childhood educators entered the public schools in greater numbers, first through kindergartens in the early twentieth century and more recently through preschool and primary classrooms, individual educators fought to retain a developmental and progressive orientation to education. The educational purposes and practices of early childhood educators, particularly the preference for play-based curriculum and child-initiated activities, sometimes placed us at odds with administrators and other teachers. Even early childhood educators outside the public schools began to experience pressure to "accelerate" the curriculum during the last decades of the twentieth century as parents urged us to adopt academic practices that would "get the kids ready for school." Pervasive competition and pressure on young children to perform well on standardized tests eventually led to a new advocacy role for early childhood, professional organizations.

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In the 1980s, the membership of the National

Association for the Education of Young Children (NAEYC) articulated the shared understanding of early childhood educators regarding early childhood purposes and practices. After much research and dialogue, NAEYC endorsed *Developmentally Appropriate Practice in Early Childhood Programs* (Bredekamp, 1987) as the unofficial "Bible" of early childhood education. Though developed with extensive input from the membership and widely acclaimed, there was opposition to the tone and content of the document almost immediately after its release. Much of this opposition came from early childhood educators who had begun to question the relevance of developmental psychology for early childhood curriculum and practice.

It now seems that cultural differences affect developmental courses and outcomes more than we have acknowledged.

The reconceptualists, as they came to be known, used critical theory to challenge both the underlying assumptions of developmental research and the applications of the research by early childhood educators (Kessler & Swadener, 1992; Mallory & New, 1994). They challenged the most basic assumption of developmental research, the possibility of defining a universally acceptable developmental endpoint. They asserted that the very word "appropriate" conjured up social norms, mainstream North American values, and marginalization of difference. Although the reconceptualists have been vigorously opposed within the field, their criticisms have also forced early childhood educators to scrutinize developmental research in light of the changing landscape of the field.

Developmental theory relies on schedules of milestones and characteristic behaviors observed in predominantly white, middle class samples. Geographically stable families located near research facilities have been good candidates for the longitudinal research respected in developmental psychology. For convenience and in order to avoid high attrition rates, researchers frequently drew samples from university laboratory schools which, until quite recently, were populated by the children of a predominantly white, upper middle class academy. When more recent research studies began to include a more varied sample, the "range of normal" tended to broaden (for summary see Trawick-Smith, 2003).

This recent, cross-cultural research has modified our understanding of human development (for summary, see Marshall, 2003). Early childhood educators have been accustomed to thinking in terms of stages, categories, and continuums. It now seems that cultural differences affect developmental courses and outcomes more than we have acknowledged. While there appear to be some enduring findings in the research, such as the value of play in children's learning and development, the difference between typical and atypical development may be less easily defined. Neo-Piagetian and sociocultural constructivists have extended and modified developmental theory to include alternate pathways and sequences of development (Bruner, 1992; Desouza & Czerniak, 2002; Kermani & Brenner, 2000; Lee & Walsh, 2003). Interpretivists have found that very young children reproduce adult cultures in their interactions with peers, forming enduring patterns of thought and behavior (Corsaro, 1985; Van Ausdel & Feagin, 2001).

The underlying assumptions of some developmental theories have been questioned at a still deeper level. Some of the more dominant developmental theories have privileged logic and scientific thinking—hallmarks of male-dominated western thought. For example, even though the role of social interaction and affect are integral aspects of Piaget's theory, his well-known structural theory is fundamentally a theory about the development of formal logic. As a biologist and genetic epistemologist, Piaget's primary concern was to discover how mental structures that appear universally are developed in each member of the species. The relative *worth* of those mental structures in various

Some of the more dominant developmental theories have privileged logic and scientific thinking—hallmarks of male-dominated western thought.

cultural contexts was of little interest to him as a researcher. However, as those who engage in less structured research with children attest, children know a great deal about the world without the use of systematic, logical thinking (Donaldson, 1978; Matthews, 1980; VanAusdel & Feagin, 2001).

Some early childhood educators are now considering how to move the field from "Developmentally Appropriate Practice" to "Developmentally *and Culturally* Appropriate Practice." In redefining "appropriate," we are rethinking the way we work with families, our definitions of typical and atypical development, and our goals for education. Early childhood educators increasingly work in settings that welcome children from around the world. We are in fully inclusive classrooms with children of widely divergent abilities. We work with families who want material success for their children and families that want their children protected from pervasive commercialism. We welcome children who are battered by real violence and those emotionally battered by media violence. Some of our families are unconscious of their privilege, while others are victimized by racism. In rethinking our work, we are beginning to reshape our purposes to encompass both autonomy and democracy. In broadening our cultural perspective, we are recognizing our shared interests with early childhood educators around the world.

We have, in effect, bound our fate inextricably with that of families around the globe.

As we face these challenges, we are aware of Freire's (1998) admonition that we are historically evolved but not determined by history. The roots of early childhood education in the United States are a foundation for growth, but they do not determine our direction. The kindergarten movement and the nursery school movements were not unique to the United States. They were international movements, responses to challenges facing Europe and North America in the nineteenth and twentieth centuries. The challenges of the twenty-first century draw us even further afield. Increasingly, our imagination must stretch to encompass global challenges.

Thinking Globally

Nations around the globe are now facing similar societal challenges even though the degree and appearance of the problem may vary from place to place. Our shared challenges include health issues (AIDS, hunger, obesity), increasing family poverty, lack of public funding for social services, war and terrorism, environmental hazards, and energy shortages. Anything that threatens families, threatens children and children's education. As a nation, the United States cannot take comfort in isolation. National boundaries have not protected us from terrorism. Economic globalization, through free trade agreements, has made national boundaries less relevant for ordinary people who must compete for jobs with workers around the world. We have, in effect, bound our fate inextricably with that of families around the globe. There is no inevitable course of events, and it is human beings (individually and collectively) that determine the course of history (Freire, 1998). In a very real and immediate way, they are all our children, and our children hold the key to our future.

When a nation claims that children are its future, that nation needs to be fully aware of the social obligations implicit in such a statement. Any country and citizenry that truly believes attention to children's care and education during the early years is of inestimable value to society would make every reasonable effort to invest in preschool and early education. High-quality programs for the very young would be regarded as an immediate necessity, not as a distant goal to be addressed after other goals are achieved.

In most nations, an effort of this magnitude would demand the involvement of a broad constituency of government, non-governmental, and private sector organizations, agencies, and individuals. It would be based on the collective wisdom of the international early childhood community of experts, researchers, and practitioners who are knowledgeable about the care and education of the very young and who can illuminate the path toward a comprehensive system of care and education for children worldwide. The result would be an international resolve to forge a commitment that places the needs of children for care and education at the top of the agenda for political and social action. The time is long overdue to act upon the conviction that children are our future and translate that powerful idea into educational programs for the worlds' youngest citizens.

All young children have a right to develop optimally,

to have their intrinsic worth as human beings recognized, and to have their learning facilitated by caring adults. The years from birth to middle childhood are important and irreplaceable in terms of overall development. Childhood should be carefully defined in all nations as a highly distinct period of human growth and development that deserves careful educational, social, and political attention and intervention. All societies have a universal responsibility to recognize the early years as ones in which children should be protected from harm, nurtured in growth, motivated to learn, and equipped to contribute to their society in a multitude of ways. Social, economic, or political interventions for young children should be designed on a general basis to insure that every child's needs are met.

Therefore, policy created for the preschool population should not separate the needs of the poor or the disabled or the different from those of children presumed advantaged or normal. Rather, nations should set one excellent standard for meeting the physical, emotional, social, and cognitive needs of all children within their societies. Through that one excellent standard, the needs of all children—and some needs may be far greater than others—can be equitably met. Each nation must do the difficult work to establish a policy framework that will address the provision of a variety of context-appropriate programs that meet the needs of all families (e.g., nomadic groups, tribal populations in remote areas, workplace child care, on-site creches). The programs provided must satisfy the three, fundamental criteria of quality, availability, and affordability. The policy framework that each nation develops will need to consider standards for credentialing programs, establishing adult-to-child ratios, setting curriculum guidelines, and improving training of practitioners. As many nations who have such policies already in place can attest, comprehensive services that begin during the prenatal stage and include health services, child care and education, parent education and training programs, family literacy projects to increase literacy levels, maternity leaves with job protection, leaves for families when children are ill, and a wide array of social services are the key to exemplary "educare." The support and protection of each generation of children, which will ensure the ongoing viability and wholeness of the nation, should be a major goal of every country in the world.

Every program that serves young children throughout the world should have a clearly articulated philosophy and goals that value children, families, cultures, and communities. This philosophy should be: communicated to the public, reflected in daily practice, and revised periodically to reflect advances in understanding about how young children grow and learn. Information about early childhood programs should be disseminated through a national publicity campaign that uses the mass media (e.g., public service announcements, videos), special events/services (e.g., infant health assessments), and door-to-door campaigns (e.g., print and nonprint information) to inform all families about opportunities for early care and education.

Quality early childhood programs also need to be administered, supervised, and monitored by educational leaders who are fully cognizant of child development, culturally aware, and willing to advocate for excellence in curriculum and pedagogy. Program assessment needs to be *comprehensive*, meaning that all programmatic contributions to children's well-being should be considered; *ongoing*, meaning that programs are monitored continuously rather than during one brief event; and *longitudinal*, meaning that young children's progress is monitored throughout their lives as students to establish the enduring contributions of early educational experiences. Moreover, meaningful assessment of programs takes a "value added" perspective by examining the genuine contributions made, both at the program-wide level and at the level of each particular child and family. High-quality assessment practices are

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integrated into the basic program design, based on direct observation and samples of children's work, and respectful of the whole child (physical, social, intellectual, emotional).

Research organizations should be established, at national as well as local levels, to conduct external evaluations of existing programs, recommend improvements, and implement innovative projects. Rather than relying exclusively on what is easily quantified (e.g., number of children served, number of classrooms, annual assessments), these external evaluations will need to consider the qualitative contributions of high-quality educare to the child, family, community, and nation from a human resource perspective. Clearly, the data required to document success in comprehensive, high-quality, early childhood programs would have to be reported as case studies as well as through statistical profiles. In light of the requirements of quality program evaluation, it seems unlikely that the measures required to satisfy the so-called No Child Left Behind legislation will provide relevant information for program (or policy) improvement.

At present, the United States has a "patched together" system of education and care that varies widely from community to community (Kozol, 1991). Access to quality education and care in the early years is far from equitable. The U.S. and Somalia (a nation presently without a centralized government) are the only two countries that have failed to ratify the international, Rights of the Child document. Rather than take a leadership role in advocacy for children, we are "a nation in denial" (Children's Defense Fund, 2001). How can we begin to address the issues of poverty, inequity, violence, poor health care, and unsafe environments for children?

Acting Locally

While we all share responsibility for facing global challenges constructively to nurture and educate all children, the authors of this paper are primarily involved in the preparation of early childhood teachers. In light of the present national and global conditions, we and our colleagues have launched a new program track at Northern Illinois University. It is our hope that those selecting the new program of study will be better prepared for the emerging challenges in the field.

The new track provides students with the opportunity to earn a public school teaching credential for children from birth to grade three, with an approval to teach preschool for children with special needs. In order to earn the approval, students will take 12 credit hours in special education. Collaboration with Project ACCEPT in the Department of Teaching and Learning has increased the candidates' ability to use assistive technology. We believe that the additional special education coursework will prepare teachers to teach children with special needs, whether they teach in a preschool, special education classroom, or some other classroom that includes children with special needs.

The U.S. and Somalia are the only two countries that have failed to ratify the international, Rights of the Child document.

Other aspects of the program address the cultural literacy of teacher candidates. A course on teaching in multicultural settings is now required. A new course, *Democracy in the Early Childhood Classroom,* has been designed to deal with philosophical and moral issues as they play out in everyday classroom practice. Most courses in the program are now being revised to include information on appropriate practices with English Language Learners. In order to accomplish this, one faculty member is participating in Project QUILL, a grant to support bilingual education that is housed in the Literacy Education Department at NIU.

We are also reaching out to more diverse communities in our area in order to place our candidates in more diverse settings during their early clinical experiences. Beginning in the Fall of 2003, our first semester candidates traveled to a nearby urban area for preschool clinical experience—an experience previously completed in the local school system.

In an effort to raise understanding and awareness of global issues, one faculty member is leading a sustainable development and education project in Kenya. Two other faculty members are participating in

the project as workshop leaders with parents and teachers there. The multifaceted project involves economic development, clean water construction projects, building and equipping a community library, and working directly with teachers and parents to develop new culturally appropriate and developmentally effective methods of education. While the NIU faculty will be able to incorporate their experiences into their courses, thus raising the candidates understanding and awareness, we also hope to eventually develop an exchange program between teacher trainees in Kenya and teacher candidates in the United States.

Conclusion

In many ways, early childhood education has really not changed much over the years. When Froebel exhorted the first kindergarten teachers, "Come, let us live with our children," he was beginning a tradition of solidarity with the youngest and most vulnerable of the world's citizens. Today, early childhood educators around the world and here at Northern Illinois University are still trying to realize that vision of solidarity with *all* children.

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Early Childhood Special Education

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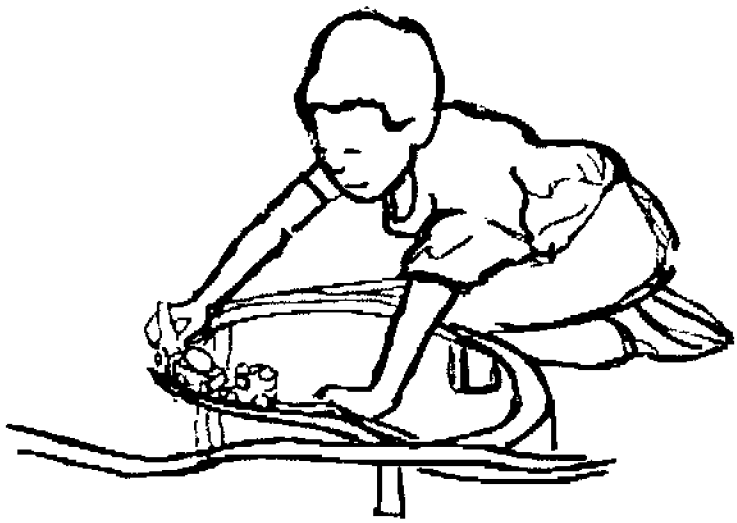

Early childhood special education (ECSE) is a field that addresses the needs of young children with special needs and children at risk from 0-8 years of age and their families. It incorporates some of the values and practices from the fields of early childhood and special education. However, ECSE is not a downward extension of special education, nor is it a side extension of early childhood education. It is a field in its own right with specific philosophies and practices, federal and state laws, a national organization, and a line of research and publications.

Early childhood special education services are provided under the federal Individuals with Disabilities Education Act (IDEA). Children age 3 and older are covered by the special education section of IDEA. Special education and related services are mandated and are provided through the public school system. Services for infants and toddlers with disabilities are covered by the early intervention section of IDEA. Early intervention services are discretionary; fortunately, each state currently provides these services. Early childhood special educators may provide services in a variety of settings including public schools, day care centers, Head Start programs, neonatal and pediatric intensive care units, early intervention programs, therapy centers, community centers, and children's own homes. The Department of Teaching and Learning (TLRN) at NIU currently offers a master's program in ECSE. At the undergraduate level, students in early childhood (ECE) or special education can take courses leading to ECSE preschool approval.

The Current State of Practice in ECSE

Family-centered Approach

Early childhood special education is built on a family-centered approach to intervention. Rather than focusing only on the strengths and needs of the child, we identify and address family concerns and priorities for the child and family as well as family strengths and resources. The family-centered approach is required by IDEA for children from 0-3 years of age and documented on an individualized family service plan. While this approach is not required by law for older children, it is considered a fundamental, recommended practice within ECSE (Division for Early Childhood [DEC], 1998a). Within the family-centered approach, services are offered in the context of the family, and families are considered core decision-makers concerning goals for both child and family; the type of services and methods used to address child and family goals; and where services are provided. Families select how much and in what ways they wish to be involved in their child's

program. Services are individualized to meet family characteristics, abilities, desires, and values (Dunst, et al., 2000). A primary goal of educators and other service providers in ECSE is to develop positive and supportive partnerships with families (DEC, 2001).

Natural and Least Restrictive Environments

Services are offered to children and families in the Natural Environment (for children from 0-3) or the Least Restrictive Environment (LRE) (age 3 and older). These are the terms that underlie the concept of inclusion. Natural environment means that services are provided in settings that are natural or normal for the child's age and for the family. LRE indicates that school-age children with disabilities should be educated in settings with typically developing children and have access to the general education curriculum and experiences as much as is appropriate, ranging from full to partial inclusion in the general education setting (DEC, 2000). The LRE and Natural Environment is determined by the child's team, including the child's family, and is documented on the Individualized Family Service Plan or the Individualized Education Plan.

The ABI approach embeds training of child goals within the daily activities and routines of group programs or in the child's home.

Approach to Intervention/Education

Early childhood special education incorporates an activity-based intervention (ABI) approach to address child goals. The ABI approach embeds training of child goals within the daily activities and routines of group programs or in the child's home. The ABI approach may involve working on child goals during teacher, parent, or caregiver-planned or directed activities, daily routines, and child-initiated activities (Bricker & Woods, 1992; Wolery, 2000). For example, early literacy skills may be addressed during morning circle or group reading (teacher-planned); counting may be practiced during snack or clean-up (daily routines); and naming body parts may be addressed as children play with dolls in the housekeeping area or during art (child-initiated).

Another fundamental belief of ECSE is that the educator's role is to provide scaffolding to meet the needs of each child (Odom, 2002). Some children will not gain skills from experience alone and they will need extensive teacher support in order to learn (Bowman, Donovan, & Burns, 2001). Teacher scaffolding may range from minimal to intensive support and direction, and it must be individualized to maximize learning opportunities for all children. Related to this is a belief in partial participation. Early childhood special educators believe that no child should be excluded from an activity because of a disability or inability to participate independently and completely. The educator's role is to identify how a child may participate in activities and to provide support that will allow the child to participate. For example, a child who is fed through a feeding tube should not be excluded from snack. Rather, that child could sit at the table with peers and do many of the same activities the other children do during snack such as pouring milk into a cup, counting crackers, and answering questions.

Current Issues and Trends, Future Efforts, and NIU Involvement

Inclusion and ABI

Although inclusion and ABI are considered recommended practices in ECSE, the effectiveness of these practices continues to be an important focus of research (Guralnick, 2001). Many programs in the U.S. now offer blended classrooms that include children with and without disabilities and children identified as high risk for disabilities and future problems in elementary school. There are many different models of inclusion and a variety of practices are employed within inclusive programs. Some of the inclusion models and practices are very effective, and unfortunately, some are not. Two questions currently being discussed within the field of ECSE are: (1) what variables are associated with effective inclusive programs? and (2) do the effects of inclusive practices vary across types of children (e.g., children with severe versus mild disabilities, children with autism versus cerebral palsy, etc.)? In other words, what practices work best and for whom? These questions currently are being evaluated through a 5-year, multi-state research institute (Odom, 2002). This institute also is conducting the first comprehensive

evaluation of the effectiveness of activity-based intervention for children with varying disabilities and characteristics and the practices that maximize the effectiveness of ABI in meeting child needs.

Coordination between ECSE and ECE

The concept of inclusion or blended programs has generalized to the areas of pre-service and in-service training that now embrace the philosophy that ECE and ECSE service providers should be able to work together and have the knowledge and skills to teach all children. The national organizations for ECE (The National Association for the Education of Young Children [NAEYC]) and ECSE (The Division for Early Childhood [DEC]) have developed joint position papers advocating for more coordination between the fields of ECSE and ECE and for blended training opportunities and pre-service programs (McCollum & Catlett, 1997; Miller & Stayton, 2000).

This area of interest is important in Illinois as well as nationally. Illinois recently approved an ECSE certification that parallels the ECE certification. Universities may provide separate ECE and ECSE certification or blended certification programs. We expect to see an increase in the number of joint, pre-service programs that will lead to certification in both ECE and ECSE and in joint, in-service training opportunities. At NIU, the ECE and ECSE faculty have taken the first step in meeting this goal by developing a pre-service program that will allow ECE students in TLRN to obtain an ECSE approval (in lieu of certification)

We expect to see an increase in the number of joint, pre-service programs that will lead to certification in both ECE and ECSE and in joint, in-service training opportunities.

allowing these students to work with children with disabilities from 3-5 years of age. This approval also is available to students receiving certification in special education. In the future, the challenge for ECSE and ECE faculty will be to develop a dual ECE/ECSE certification program.

To meet the goal of coordinated in-service training, Illinois offers an interdisciplinary early childhood conference for families and individuals who work with typically developing young children and children with disabilities. Sessions at the Sharing A Vision conference address current issues and trends in ECE and ECSE and needs identified by educators and families.[1] Students and faculty from TLRN and other departments at NIU have attended and presented at this conference.

Early literacy generally has not received sufficient attention in ECSE and ECE personnel preparation programs.

Illinois also is actively working on several ambitious, complicated, and related initiatives regarding collaboration between ECE and ECSE. Illinois is one of four states awarded a Natural Allies grant which is designed to assist faculty at 2- and 4-year colleges as they embed ECSE content and experiences into ECE courses and to provide additional, blended, in-service training opportunities.[2]

Illinois is committed to developing a career lattice for all early childhood practitioners working with children with and without disabilities from 0-8 in school, day care, and Head Start settings. The career lattice will include several points of entry and exit ranging from in-service training to certification and will provide a common core of training across participants. It also will coordinate the several options and types of credentials currently provided or proposed in Illinois such as the early intervention credential, ECSE approval, child development certification, and ECE and ECSE (Type 04) certification. These groups also are focusing on standards and training related to proposed credentials such as the infant toddler, infant mental health, and administrator credentials.

Finally, a group of individuals is working in conjunction with the career lattice and Natural Allies group and the Illinois State Board of Education to establish universal preschool in Illinois. The long range goal of this initiative is to provide preschool to all 3- and 4-

year-olds (with and without special needs) through well qualified educators.[3]

Early Literacy

Early literacy (for children 0-5 years of age) generally has not received sufficient attention in ECSE and ECE personnel preparation programs. As a result, it has not been a major focus or goal of many programs for young children with and without disabilities. The result of this is that many children enter public school without the fundamental skills that are prerequisite to learning how to read and write. Many of these children eventually require remedial education services (Bowman et al., 2001). Early literacy is now recognized as an important area of development for all children and as an important component of personnel preparation programs including the ECE program in TLRN.

Early literacy research will continue to be a focus within ECSE and ECE, and it is a priority at the federal level through the No Child Left Behind legislation and grant funding initiatives. Research will focus on assessment as well as curricula and strategies to promote early literacy in children's homes and group settings. Two faculty in TLRN (Chandler & Bursuck) recently submitted two federal grants in the area of literacy. Bursuck and colleagues in the College of Education have conducted extensive research on strategies to promote literacy in young, elementary school-aged children (e.g., Bursuck, Smith, Damer, & Munk, 2003). Recently faculty from TLRN (Bursuck & Chandler), LTLA (Elish-Piper & Smith), and ETRA (Smith) collaborated on a grant that incorporated adult, family, and early childhood literacy.

Challenging Behavior

Challenging behavior often is identified by ECSE staff and families as the number one area for training and assistance (Chandler, Dahlquist, Repp, & Feltz, 1999). As a result, much research and training has focused on the development of functional assessment and positive behavioral supports to address challenging behavior for young children in group and home settings. This area of interest recently expanded to include a focus on emotional problems, infant mental health issues, and challenging behavior. Current research and practice focuses on the prevention of challenging behavior as well as remediation by teaching and supporting appropriate replacement behaviors that children can use to meet their needs (DEC, 1998b; 1999).

Functional assessment and positive behavior intervention plans is an area of expertise and interest among many special education faculty in TLRN. Two faculty (Chandler & Munk) received a Research and Artistry grant in 2003 to evaluate functional assessment practices and needs within Illinois schools. In addition, Chandler authored a book on functional assessment for school settings (Chandler & Dahlquist, 2001). Several faculty in TLRN, including Adams, Cancio, Chandler, Munk, & Vanlaarhoven have published articles and chapters, conducted research, and provided training and consultation in functional assessment.

Functional assessment and positive behavior intervention plans is an area of expertise and interest among many special education faculty in TLRN.

Alternative Assessment Strategies

Alternative strategies for assessing the strengths and needs of young children is emerging as an important issue in ECSE as is the need to tie assessment to established learning standards. For years, educators in the field have criticized norm-referenced, standardized tests for young children. This led to the development and evaluation of alternative strategies such as curriculum-based, portfolio, and play-based assessment methodologies (Neisworth & Bagnato, 2000). Illinois currently is piloting a portfolio progress monitoring system that reflects the Illinois Early Learning Standards for children. These alternative assessment systems have been added to TLRN courses in ECSE and ECE.

Currently, researchers in Minnesota are coordinating an Early Childhood Research Institute (ECRI, 1998) to develop quick and efficient methods that would allow educators and families to examine current development and to track progress over time. While such assessments have been developed for older students, they are just beginning to be developed and evaluated for ECSE. In the future there will be a set of Individual Growth

and Development Indicators (IGDIs) for all developmental domains. Faculty in TLRN (Bursuck, Chandler, and Mutuku) are establishing local norms in conjunction with community preschool programs for three IGDI measures of early language and literacy.

Translating Research into Practice

A common criticism in ECSE is that research outcomes are not easily translated into practice within group programs or children's homes. Too often, effective research practices are documented in research journals or presented at research conferences and then they are not employed (or known or understood) by practitioners working directly with children and families (Carta & Greenwood, 1997; Chandler, 2000).

One of the goals of the national DEC organization is to facilitate the translation of research findings into practices that can be easily understood and applied and that are acceptable and feasible for use by ECSE practitioners and families (DEC, 2001). DEC recently developed a journal, *Young Exceptional Children,* that is designed for practitioners and families. The purpose of this journal is to report how effective research-supported practices may be applied in group settings or children's homes. This journal has been very well received by practitioners in the field. DEC has published a second edition of a recommended practices book and will update this book (and practices) every few years (Sandall et al. 2001). Recommended practices and specific sessions for working practitioners also are included in the national DEC conference and the Illinois Sharing A Vision conference. In development is a 5-year strategic plan for DEC that will address many of the current issues and recommended practices discussed in this paper.

Early childhood special education is a relatively young and dynamic field. In 2004, the Division for Early Childhood (the national advocacy organization for ECSE) will celebrate it's 30th anniversary at the annual conference in Chicago. At that time, recommended practices and position papers regarding ECSE will be revisited, and the strategic plan for the next five years will be presented to conference participants. Faculty at NIU look forward to hosting the 2004 conference and to working with educators at the national level and in Illinois to promote a successful future for young children with disabilities, children at-risk, and their families.

Endnotes

[1] Lynette Chandler, author of this article, has been involved with the Sharing A Vision conference for 12 years and is co-chair of the 2003 conference.

[2] Chandler is part of the Natural Allies team and was part of the traveling team who spent five days in North Carolina planning strategies to meet grant goals.

[3] Chandler is a member of the universal preschool and career lattice committees.

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Special Education in the State of Illinois: What's New?

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Federal law mandates that students who have disabilities that adversely affect their educational performance receive special education, related services, and supplementary aids and services from 3-21 years of age. Special education and other aids and services are those supports that enable a student to participate and progress in the general education curriculum and individualized goals. They may include specially designed instruction, adaptations to materials and student goals, speech and language therapy, occupational and physical therapy, orientation and mobility instruction, social work services, and vocational training. Special education services are administered by the Illinois State Board of Education (ISBE) and are provided through the public school system. Special educators obtain certification as Learning Behavior Specialists and may work with students in self-contained settings in which all students in the setting have disabilities, in general education settings that contain students with and without disabilities, or they may provide consultation to general educators and other members of the educational team.

Federal Influence on Special Education: Individuals with Disabilities Education Act

The rights of students with disabilities and their families are authorized and defined by federal and state laws and regulations and the outcomes of legal proceedings. The federal Individuals with Disabilities Education Act (IDEA), originally passed in 1975 as the Education for All Handicapped Children Act, defines several components that must be provided to all eligible students with disabilities and timelines for completing specific tasks. Some of the key components are (1) least restrictive environment, (2) individualized education plan, (3) transition, (4) discipline requirements, and (5) person-first language.

Least Restrictive Environment

Students with disabilities have a right to receive

special education and related services in the least restrictive environment (LRE). This is the concept underlying inclusion, and it includes a commitment to providing students—to the maximum extent appropriate—access to the general education curriculum that is provided in settings and situations with non-disabled peers. The student's educational team, including the family and the student if appropriate, determine the

When we refer to students with disabilities, we should put the student first and the disability second.

LRE that best meets the student's needs. If full participation in general education settings is not deemed appropriate, the team may consider a continuum of placement options including part-time placement in general education settings, part- to full-time in resource rooms, self-contained classrooms and schools, and home instruction. Determination of the LRE and the type and amount of special education and related services must be based on student needs and must be supported by results from multiple sources of assessment.

Individualized Education Plan

Under IDEA, each eligible student is entitled to a public education designed to meet his or her needs, the cost of which is the responsibility of the state and public school system and not the family's (i.e., a free, appropriate, public education, or FAPE). This is documented on an individualized education plan (IEP) that is developed by the educational team. The IEP documents (a) the present level of educational performance; (b) family concerns related to their child's educational program and strategies for informing the family of the child's progress; (c) annual goals and benchmarks; (d) special education and related services, supplementary aids and services, program modifications, and supports for school personnel (Public agencies must ensure that assistive technology devices or assistive technology services, or both, are made available to a child with a disability if required as part of the child's special education, related services, or supplementary aids and services.); (e) the LRE; (f) participation in school-wide assessment; and if appropriate, (g) adaptations to address communication, language, vision, and behavior needs.

Transition

Teams are required to develop plans to facilitate the transition from high school to post high school circumstances. Transition plans are developed annually starting at age 14. The purpose of the transition plan is to identify goals and strategies that will prepare students for post high school experiences. Transition plans may address issues related to future employment, additional schooling or job training, life skills, and living arrangements. Transition also is addressed at age three for children who enter public school from early intervention services.

Discipline Requirements

This component addresses the needs of students with challenging behavior. It requires educational teams to conduct functional behavioral assessment to identify why challenging behavior occurs and to develop positive behavior intervention plans for students whose challenging behavior impedes their learning or the learning of others or results in suspension, expulsion, or a change of placement. This plan is added to the IEP. All school districts are required to have policies and procedures related to discipline and challenging behavior and should have at least one individual who is able to conduct functional assessment and develop positive behavior intervention plans.

Person-First Language

IDEA was originally titled the Education for All Handicapped Act. This title was changed to IDEA in 1990 to include the term disability instead of the term handicapped and to emphasize the use of person-first language. Families requested the change to person-first language because it focuses on the person, rather than the disability. When we refer to students with disabilities, we should put the student first and the disability second (e.g., refer to a student with autism, not to an autistic student or to a child with a behavior or social emotional disorder, rather than to a behavior disordered or BD student).

The IDEA law is reauthorized by Congress every five years at which time the amount of funding provided to states is determined and changes to the law

can be made. The current reauthorization of IDEA is expected to be completed by 2004. Many changes to IDEA have been proposed and are being debated in Congress as well as by families, advocacy groups, and professional organizations. The Council for Exceptional Children (CEC), the special education advocacy and professional organization, is particularly vigilant with respect to proposed and final changes to IDEA.

Federal Influence on Special Education: No Child Left Behind

Another federal influence that has direct impact on special education is the No Child Left Behind (NCLB) legislation of 2002 (NCLB,2001). The NCLB legislation requires annual testing of all students against state standards in reading and mathematics in grades three through eight and in science three times during a student's school career (including once in high school). Schools are evaluated on the basis of test results and held accountable for student achievement, including the achievement of students with disabilities. In the state of Illinois, the Illinois Learning Standards define what all students should know and be able to do as a result of their schooling.

Students who are not achieving their potential often wait two or three years to receive the assistance they need.

Schools that receive low scores for more than two to three years must offer parents an option to transfer to another school or provide remediation for the students who are not achieving satisfactorily. Unfortunately, within this framework, students who are not achieving their potential often wait two or three years to receive the assistance they need since remediation efforts are in place only after they have demonstrated failure. As a result, the students who are already struggling will fall increasingly behind and will require more intensive interventions to make adequate improvement. To prevent this scenario, teachers must demonstrate greater proficiency in assessing student progress more frequently and adjust their instruction to prevent more significant academic problems. To accomplish this, all general and special educators must be familiar with a number of accountability systems including high stakes assessment, alternate assessment, and curriculum-based assessment and measurement.

High Stakes Assessment

Assessment in special education is based on the same principles as assessment in general education settings: all teachers must measure student progress. In most cases, students with disabilities take the same annual state assessments as their peers with or without accommodations, and their scores are included in the results of the state assessments.

Alternate Assessment

Alternate assessments are measurement alternatives for students who are unable to participate in "high-stakes" assessments, even with accommodations, due to the severity of their disabilities. In the past, students with significant disabilities were exempt from state tests. However, this practice changed with the 1997 reauthorization of IDEA. IDEA stipulated that all states must have alternate assessments in place by July, 2000, to ensure that state accountability systems were inclusive of the entire student population.

In Illinois, the alternate assessment for students with limited English proficiency is the Illinois Measure of Annual Growth in English (IMAGE). IMAGE measures progress in the English language reading and writing skills necessary to achieve the Illinois Learning Standards. Students with severe disabilities participate in the Illinois Alternate Assessment (IAA) which requires students to submit portfolios for the academic subjects required at their grade level (e.g., students in 8th grade need to provide evidence of learning in the subject areas of reading, math, and writing). The data that are submitted for student portfolios include work products, charts, graphs, task analytic assessments, and other relevant documentation that can be collected in a

In the past, students with significant disabilities were exempt from state tests.

variety of environments (e.g., in community environments when the student is learning to shop or work or in inclusive classrooms). As a result, teachers of students with severe disabilities must have a comprehensive background in a variety of assessment procedures, be able to organize a broad and varied set of data, and have the skills to analyze the data and report the information clearly.

Other Accountability Systems

In addition to state assessments, special and general educators are legally mandated to provide evidence of achievement toward students' goals/benchmarks on their Individualized Educational Programs (IEPs). This obviously requires more frequent measurement of student performance. To be effective, teachers must assess students frequently and use the data to make instructional decisions for each child. When teachers are more informed of the learning progress and difficulties of their students, they are better able to make decisions regarding the effectiveness of an instructional program, to determine if remediation is necessary, and to design more effective instructional plans. One model of assessment that can assist in this process is curriculum-based assessment (CBA).

With frequent measurement, students' progress can be displayed over time and can be compared to their anticipated rate of progress.

Curriculum-based assessment (CBA) is a method that uses a student's performance in his or her actual class work to identify and address instructional needs. The assessment shows what the student knows in relation to the skills required to be successful in the classroom and can also be linked to educational standards.

Curriculum-based measurement (CBM) is a subset of CBA and allows the teacher to monitor the effectiveness of the instruction or intervention developed from the CBA. The key components of CBM include direct, repeated measurement of student performance in the curriculum being using (Marston, 1989). The measures must be of short duration, capable of having many forms, and sensitive to improvement of students' achievement over time. Typically, assessment items are comprised of materials drawn directly from the curriculum and cover the material to be taught during the course of the year (Overton, 1996). For example, a sample of problems from a second-grade math text can be used to generate the curriculum-based assessment. With frequent measurement, students' progress can be displayed over time and can be compared to their anticipated rate of progress. If students are making insufficient progress, areas of need can be identified and instruction can be modified to ensure adequate progress.

Impact of Accountability

NCLB requires adequate yearly progress (AYP) for all students measured through statewide assessments, progression on IEP goals, and state standards. The performance data of students with disabilities will be considered in the determination of whether or not a school faces remedial action. This higher degree of accountability places pressure on local education agencies to ensure that students with disabilities have access to the general education curriculum so they can achieve the statewide learning standards. This will obviously lead to more inclusive educational practices and will directly influence how we prepare our future teachers. Furthermore, this change in practice is reflected by the fact that more than 40 special education professional knowledge and performance indicators have been added to the Illinois Professional Teaching Standards (IPTS) for all teachers.

NIU's Response to Federal Influences: Current and Future Directions

Project ACCEPT (Achieving Creative & Collaborative Educational Pre-Service Teams)

One way the faculty at NIU is meeting the challenges of an ever-changing field (and ensuring that our students are meeting the requirements of the Illinois Professional Teaching Standards) is through Project ACCEPT. Because there is a need for collaboration between special and general educators, NIU has responded by offering collaborative experiences to preservice educators. Project ACCEPT is funded through the Illinois Council on Developmental Disabilities. This project is Co-Directed by Toni Van Laarhoven and

Dennis Munk in TLRN, by Julie Bosma and Joanne Rouse from the Regional Access and Mobilization Project (RAMP), and is implemented with the assistance of Sharon Wyland (Project Associate) from TLRN.

The over-arching purpose of Project ACCEPT is to enhance the pre-service experiences of general and special education students by creating a common course (TLSE 456) and providing information and experiences that prepare them to collaborate in diverse, inclusive classrooms. The ultimate goal of Project ACCEPT is to develop effective educators who have the ability to teach all children. One key component of the project is a shared clinical experience for students wherein they are required to observe and team-teach in inclusive classrooms. Within the clinical experience, students from elementary, secondary, and special education co-develop and co-teach lessons that address the needs of all students. NIU students are expected to link their instruction to state standards, use information from students' IEPs, conduct environmental analyses, incorporate assistive technologies in their instruction as appropriate, and assess student performance.

The ultimate goal of Project ACCEPT is to develop effective educators who have the ability to teach all children.

Although we have just completed our pilot year, preliminary results indicate that students within Project ACCEPT have significantly superior skills for teaching in diverse classrooms than their counterparts who are enrolled in a "mainstreaming" course that is currently a requirement only for elementary and secondary students. As a result, we are in the process of adopting this model and making it a requirement for *all* pre-service educators. We anticipate that this will be a requirement for all of our pre-service educators by Fall, 2004.

Another component of Project ACCEPT is collaboration among faculty members in special and general teacher education programs (elementary and secondary). The ACCEPT team offers support to faculty members who wish to incorporate content related to working with students with disabilities in their methods courses' content. We provide support in the areas of assistive technology, co-teaching and collaboration, universal instructional design, working with families, and adaptation of curriculum. During the first year of the project, we provided support to faculty members through guest lectures and team teaching. We are currently working with several faculty members who will serve as mentors to their colleagues in their respective disciplines.

Assistive Technology

With the restructuring of the teacher certification programs, more and more teachers need expertise in educating students with disabilities. One way to accommodate the needs of these individuals is through the use of assistive technology. Assistive technology can loosely be defined as any product or device that can increase the independence of individuals with disabilities. Because of the push toward inclusive education and because schools must adhere to the guidelines established in IDEA (that require students with disabilities to have access to assistive technology devices and/or services), it is critical for all educators to become familiar with assistive technology applications. As more students are using assistive devices in public school programs, it is imperative for pre-service and in-service teachers to learn what devices are available, for whom such devices would be beneficial, and how to integrate the technology effectively within educational programs. This can only be accomplished by providing hands-on instruction. As a result, the College of Education has targeted the development of a new assistive technology lab as a funding priority. We are developing a state-of-the-art lab to be semi-operational in Spring, 2004, for all pre-service educators. This new addition to our teacher preparation program will significantly enhance our ability to prepare quality educators for an increasingly diverse field.

It is critical for all educators to become familiar with assistive technology applications.

Completion of the lab will occur as funds become available.

State Influence on Special Education

Corey H. Class Action Law Suit

The *Corey H.* suit, filed in 1992 by Designs for Change and the Northwestern University Law Center against the Chicago Public School System (CPS) and the Illinois State Board of Education (ISBE), changed the course of public school, special education services and teacher certification for both special and regular educators in Illinois. The central issue in this case focused on the need to place students with disabilities in the least restrictive environment (LRE) in accordance with IDEA. This suit was filed on behalf of the 53,000 CPS children with disabilities, charging that the rights of these children to be educated under the LRE component of the law had been violated. It charged, in part, that CPS placed many students with disabilities in separate classrooms and schools, based solely on the specific category of their disability even though with proper support services, they could have been educated in regular classrooms. In other words, if a student was diagnosed as TMH (trainable mentally handicapped), that student was automatically placed in specific classes or schools. It further contended that ISBE contributed to this problem by failing to exercise its oversight authority.

The changes resulting from the* Corey H. *settlement are designed to improve the education of students with disabilities in Illinois

Changes in Teacher Certification

In the settlement agreement with the CPS and ISBE, the federal district court judge assigned to this case ordered the ISBE to revise teacher certification policies and procedures for both regular and special education effective July, 2003. The settlement agreement in this case has had a substantial impact on the certification of both special and general education teachers in the state of Illinois. For special educators, non-categorical teacher certification has replaced the categorical certification. The new certification, known as Learning Behavior Specialist I (LBS I), applies to all special education teachers in the state with the exception of those in the areas of blind or visually impaired, deaf or hard-of-hearing, early childhood special education, and speech-language pathology. The LBS I certification encompasses the disability categories of learning disabilities, emotional disturbance, educable mental retardation, trainable mental retardation, physical disabilities, traumatic brain injury, and autism, covering the entire age range of kindergarten through grade twelve. Illinois institutions of higher education that have teacher education programs in special education have been required to reconfigure their programs to ensure appropriate teacher preparation across all of the categories now subsumed under the LBS I. They must also ensure increased expertise for special educators in general education content area teaching.

This change has also created a second tier of certification, the Learning Behavior Specialist II (LBS II). The LBS II is designed to train experienced special educators to a higher level of expertise allowing them to serve as specialists in areas such as transition, technology, bilingual special education, deaf-blind, behavior intervention, curriculum adaptation, or multiple disabilities.

The increased focus on LRE and access to the general curriculum for all students with disabilities has a direct impact on the teacher preparation of all general educators in the state. These increased requirements for general educators are reflected in the Illinois Professional Teaching Standards that include a number of indicators relevant to teachers' skills in responding to the varying learning styles and needs of students enabling educators to serve students with disabilities in the LRE.

Overall, the changes resulting from the *Corey H.* settlement are designed to improve the education of students with disabilities in Illinois, based on the premise that both general and special educators should be better prepared to share the responsibility for students with disabilities in their classes. Additional information about the *Corey H.* settlement ruling, the Illinois special education certification structure, and the Illinois Professional Teaching Standards are available at

www.isbe.state.il.us/spec-ed.

NIU's Response to State Influence

Current and Future Directions

Both general and special education teacher-training programs at NIU have revised their programs to include the Illinois Professional Teaching Standards relevant to the *Corey H.* settlement agreement. However, the greatest impact has been the complete reconfiguration of the special education teacher-training program. Beginning with the Fall, 2003 semester, the previous categorical special education majors of High Incidence and Developmental Disabilities will be replaced with the Learning Behavior Specialist I major. This program, which incorporates a new set of courses, will prepare and train pre-service special education teachers to serve students with disabilities included under the LBS I umbrella in grades K-12.

Also, a new program is being developed to prepare students for the LBS II certification. This program will offer coursework in three areas of specialty: behavior intervention, curriculum adaptation, and technology. Students with the LBS I certification will be able to earn a Certificate of Graduate Study (CGS) in one or more of these areas. They also will have the opportunity to earn a CGS as part of a graduate program. In addition, faculty in special education are beginning to discuss a specialization in special education within the doctorate in curriculum and instruction.

The special education categories of blind or visually impaired, deaf or hard-of-hearing, early childhood special education, and speech-language pathology will remain as separate, Illinois teacher certificate categories. NIU will retain the current program in Visual Disabilities (including undergraduate and graduate components), under the College of Education, and the Speech-Language Pathology program under the College of Health and Human Sciences. However, due to budget constraints, the Deaf Education program is currently being phased out. Students who entered the Deaf Education program in or before the Fall, 2002-03 catalog year will be allowed to complete their program before the end of the 2005-06 school year. Students are no longer being accepted into this program at NIU. It is important to note that although this program is being phased out, there is still a demand for certified teachers of students who are deaf or hard-of-hearing.

Conclusion

In the recent past, the field of special education has been subject to a number of federal and state influences that have posed substantial challenges regarding teacher preparation. Through the collaborative efforts of the special education and other faculties at NIU, programs that meet the requirements of IDEA, NCLB, and the *Corey H.* settlement agreement have been created and continue to evolve. We will continue to work together in our efforts to prepare teachers who are able to meet the demands of the 21st century.

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Lynette Chandler is a Professor in Teaching and Learning. She has over 25 years of experience in early childhood special education and behavior analysis. Specific areas of expertise and areas of research include social skills, transition, early literacy, and functional assessment and challenging behavior. Lynette is very active in early childhood special education at local, state, and national levels.

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Science-Technology-Society: Promoting Reform in Elementary Education

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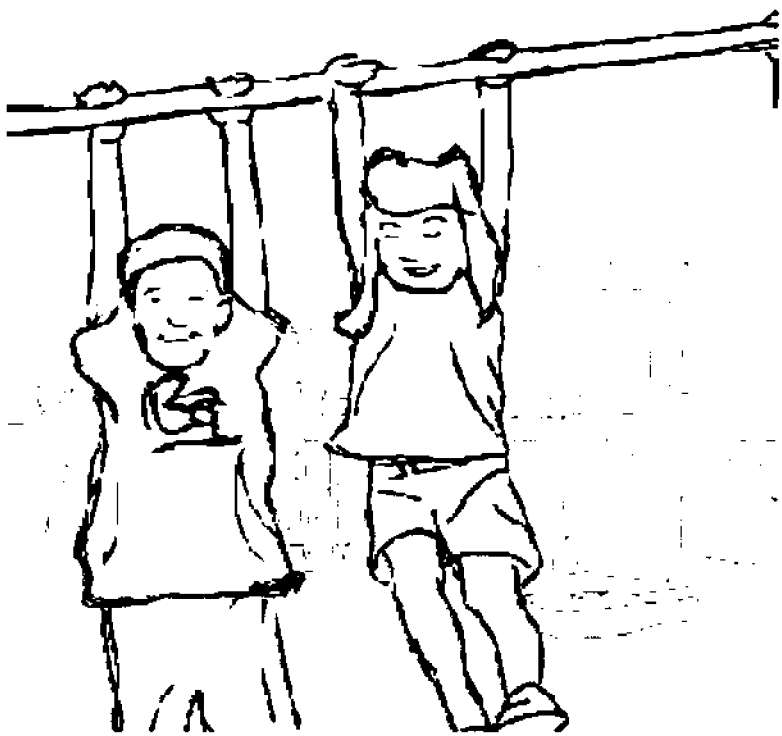
Northern Illinois University



Current State of Elementary Education

As veteran teachers retire and the number of elementary students increases, the need for elementary teachers, particularly in urban and under-served rural areas, grows. In an increasingly crowded school day, science and social studies often receive little attention.

Focus of No Child Left Behind Act (2002)

Much of the current program and national level interests surround the related areas of language arts, reading, and other literacy-related issues. The recent No Child Left Behind Act (US Department of Education, 2002a) offers, among its other elements, a focus on reading and language development, especially in the primary grades:

> H.R. 1 authorizes an increase in federal funding for reading from $300 million in FY 2001 to more than $900 in FY 2002 and links that funding to scientifically proven methods [sic] of reading instruction through the President's Reading First plan. (US Department of Education, 2002a; paragraph 15)

NCLB also supports math instruction and science instruction. The support for improving science is offered by the US Department of Education's (2003) documentation supporting NCLB:

> The Challenge: America's schools are not producing the science excellence required for global economic leadership and homeland

security in the 21st century.

> The Solution: Ensure schools use research-based methods to teach science and measure results. Establish partnerships with universities to ensure that knowledgeable teachers deliver the best instruction in their field. (US Department of Education, 2002b; paragraph 2)

The texts above underscore the current administration's focus on "scientific" studies to support changes in teaching. The available information on NCLB, despite its assurances of "greater local control," mainly extends control to moving available funding from one budget line to another. The other NCLB mantra, that of "greater accountability" and constant testing of students is destined to have a dramatic impact on the delivered curriculum of the public schools. As social studies are not included among the NCLB fundamentals of reading, math, and science, it is clear that meaningful social studies experiences are in danger of being eliminated from the public schools. To this end, seeking to include social studies experiences through interdisciplinary practices becomes essential to preserve the value of the social sciences in the public schools. An interdisciplinary approach such as a Science-Technology-Society framework (discussed hereinafter) provides a means of eliminating the boundaries between science and social studies instruction, allowing social studies to maintain a viable presence in the classroom.

A Science-Technology-Society framework provides a means of eliminating the boundaries between science and social studies instruction.

Issues Specific to Science Education and Social Studies Education

Obviously, more takes place in the elementary classroom than math and literacy experiences despite their inherent primacy. One of the challenges of preparing elementary teachers to be effective science and social studies teachers "hits home" with recently graduated students as they arrive in the public schools and find that social studies and science are not always present in the delivered curriculum (Passe, 1999). National standards in science and social studies emphasize process skills in which students practice the skills of historians, social scientists, and natural scientists. State standards in social studies appear to be content-laden. What are teachers to do when faced with so many skills and so much content that should be taught in science and social studies? Science and social studies faculty at Northern Illinois University respond to the state and national standards by recommending the implementation of more interdisciplinary curriculum. One way to integrate science and social studies curriculum is through the framework of Science-Technology-Society (STS).

STS as a Means of Reform in Elementary Education

STS has been identified by a number of authors (Bybee, 1993; Patrick & Remy, 1985; Yager, 1996) as an essential means of reforming science and social studies education. Previous reforms in science and social studies tended to be unsuccessful due to goals inconsistent with society (e.g., early 1960s curricula that focused on preparing scientists or social scientists) or because of the disconnect between the content and processes delivered by the curriculum and the students' lives. But, nationally and locally, STS holds promise for enhancing the contemporary goals of science and social studies. The National Council for the Social Studies has already identified STS as a part of students' learning goals. Learning Standard 13 puts Illinois on record as supporting teaching issues in science, technology, and society in an interdisciplinary manner.

History of the STS Program

The STS movement can trace its beginnings to efforts in several European countries as well as some earlier domestic attempts to institute an STS-like curriculum, as in the University of Iowa Laboratory School during the early 1960s (Yager, 1990). According to Yager, the effort in the United States was given

an added emphasis in the early 1980s in addressing the concern for science education and striving for academic excellence. The goal was to create a science program that would involve all students—not just the one or two percent who would study science in college. STS holds promise in stimulating the interest of African-American youth (Jegende, 1994; Solomon, 1994), women (Rose, 1994), and other marginalized ethnic groups (Rampal, 1994).

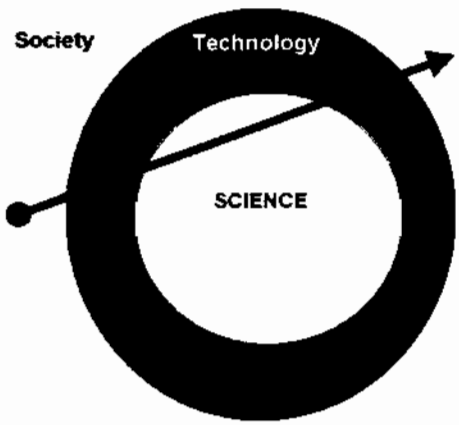


Figure 1. Symbolic representation of interactions among science, technology, and society.

The idea behind the STS program is to provide the student with a real-world connection between the classroom and society. The process should give the student practice in identifying potential problems, collecting data with regard to the problem, considering alternative solutions, and considering the consequences based on particular decisions. (Yager, 1990). One way (Aikenhead, 1992) of conceptualizing the program is to consider the image in Figure 1. There, technology represents the interface between science and society. Decisions made by society typically require the use of technology to implement them. Concomitantly, society and science use technology as a means of securing information. The pivotal role served by technology can serve as a means of action and of investigation in the STS curriculum. The figure also implies the nature of science as a field within all of society.

STS shapes school science and social studies in a much broader way than the typical discipline-centered, textbook-driven courses. Zoller (1992) described the need for all students to be informed as to the content and process of science but with the understanding that science and society impact each other. The literate STS student becomes expert at problem-solving—not the solving of discrete exercises. The focus is on the more fundamentally important areas of developing hypotheses, asking questions, testing the hypotheses, and drawing conclusions based on their interpretation of the results. In essence, STS fosters critical thinking skills.

Finding results similar to those of Zoller, but stating them more succinctly, Brunkhorst and Yager (1990) examined exemplary STS programs and suggested that most have the following characteristics:

- They emphasize science for all students.
- They emphasize higher order thinking skills across content areas.
- They are interdisciplinary in nature.
- They are hands-on, student-centered, minds-on programs.
- They include student action plans, projects, field experiences, and field research.
- They utilize many outside resources.
- They tie STS issues to the traditional content of the course.
- Evaluation tends to be structured very differ ently.
- Evaluation includes awareness and reasoning components.
- In many cases, there is no attempt to use typical tests; instead, tests are designed to assess in a variety of domains.
- When standardized tests and/or textbooks are used, students do as well (if not better) than s tudents in typical science courses (p. 63).

The National Council for the Social Studies also calls for students to study the relationships among science, technology, and society. Through the use of STS curriculum, even young students can "suggest ways to monitor science and technology in order to protect the physical environment, individual rights, and the common good" (NCSS performance expectation VII.e)

While some individuals may consider STS to be a passing trend in education, Rutherford (1988) argues forcefully that it has a great degree of staying power. Strongly supporting of the STS approach is its hands-on perspective, its interdisciplinary approach to the content, its ability to genuinely involve students, and its

social relevance. In a larger sense, he suggests that as the volume of information in society continues its increase and the need for citizens who are conversant in science, technology, and their relation to society also becomes more acute, the need for STS will be accepted.

STS as Part of the Science Curriculum

STS does not need to be a separate class period in the elementary classroom. Instead, Aikenhead (1992) suggests that STS could integrate what is currently taught (or ignored) in science and social studies to make the learning experience more powerful. His model, described as part of Figure 1 (above), is developed so that technology (in terms of techniques and products) provides the interface between science concepts and skills and the rest of society. He stated:

> [In] STS science, traditional content is not watered down, but is imbedded in a social-technological context. The choice of the context is made on the basis of the meaningfulness to the students and the science content generated by the context—on a need to know basis—required by a particular part of the curriculum. (p. 28)

A hallmark of STS is that students take some civic action after studying how science and technology have affected society.

A study of Iowa teachers (Yager, Mackinnu, & Blunk, 1992) determined that students did indeed demonstrate a growth in process skills, applications of science processes and concepts to new situations, and even an improved attitude toward science. Interestingly, they found that when results of the study were compared across districts using and not using STS, the scores on measures of knowledge gained were not significantly different. However, students whose schools did not use the STS approach did not find the same sort of success in terms of process skills and science inquiry skills.

The use of a theme is one of the fundamental points of the STS curriculum. The advantages of this approach are the presentation of science knowledge, skills, and understanding in a personal/social context (Bybee, 1987). The theme approach allows the development of particular skills needed and specialized knowledge needed to analyze properly the phenomena involved. An example frequently cited is the role of environmental awareness as a means of approaching science in the STS context (Rosenthal, 1990). In a lesson, for example, one could examine the effect of global warming, learning in the process about the effects of carbon dioxide on the atmosphere, the effects of the transmission and absorption of electromagnetic radiation and the societal effects of changing the volume of combusted hydrocarbons (e.g., How will it affect commerce, transportation, and the economic conditions of various states and countries?).

STS does not need to be a separate class period in the elementary classroom.

The example above was quite specific. In a more global consideration, the conceptual basis of how to implement STS is also worth considering. Two approaches offered for confederation are those of the science policy study and the social studies of science approaches (Rosenthal, 1989). The science policy studies approach represents an issues-oriented approach to STS. It offers the advantage of immediacy and relevance in terms of the topic being studied. The social studies of science approach, however, can offer a more general approach with a broader framework for implementation. This perspective can be considered studying the social impact of science along with the science content being studied.

STS and its Relation to the Social Studies

A hallmark of STS is that students take some civic action after studying how science and technology have affected society. Remy (1990) made the case that to achieve education for good citizenship, perhaps the ultimate goal of social studies education, one must have informed citizens. The integration of science and

technology content into the social studies can help to further that goal. As the public policy agenda becomes more and more technology-science oriented, the social studies can ignore the impact of science on society only at its own peril. The use of science and technology can provide an increased body of relevant knowledge that can assist students in making informed decisions on pertinent issues. In addition, the often repeated idea of making connections between the disciplines is enhanced. One writer, echoing these same sentiments, described the process as "bonding humanities and technology" (Huber, 1988).

Anderson (1991) offers one of the few examples of an elementary STS project that is described in the literature. She very briefly explains that fourth through sixth graders lobbied their local government to clean up a toxic waste site near their school. While there is little research showing that students who have completed STS projects are more likely to engage in political activity later in life, the possibility seems promising.

Other voices from the social science field offer research to support the position that STS provides the best means of addressing the needs of all students (Bybee, 1993; Rutherford & Ahlgren, 1990; Waks, 1991). In particular, urban youth, neglected on many accounts, have found numerous benefits from the use of STS. The structure of the lessons (e.g., group work, information shared across the curriculum) has been helpful; but more importantly, the sense of ownership and empowerment the students derive from the STS perspective is especially noteworthy. Particularly important in the inner city school, lessons are designed to involve the students so that they may derive a sense of personal empowerment.

Experiential learning is key to teaching STS.

May (1992) has cautioned that teachers must be thoughtful about how science, technology and society are presented. In her view, the STS system can, if unleashed irresponsibly, represent an expression of a westernized, secular, science-driven culture. Some degree of sensitivity is needed with respect to the belief systems of the students who will participate in the program. For example, science is not always viewed as primal in some belief systems.

Pedagogical Considerations in STS

As the number of schools and school districts implementing STS has increased over the last decade or so, the struggle to implement so radically different an approach to the traditional discipline-centered curriculum yielded a number of studies focused on the process of teaching and learning within an STS framework. Implementation of any change in curriculum raises concerns among practitioners.

Adults display very little in the way of basic scientific and technological literacy.

To analyze teachers' concerns regarding a system that many would consider nontraditional, Mitchener and Anderson (1989) examined teachers' perspectives in the creation and implementation of an STS curriculum. By examining the subject from the teachers' point of view, it was possible to determine barriers to implementation and application. Their findings indicated that the concerns among teachers could be categorized as follows:

- concerns over content,
- discomfort with grouping,
- uncertainties about evaluation,
- frustrations about student population, and
- confusion over the teacher's role.

Considering the nontraditional nature of the course, its content, and the necessary evaluation procedures, these results were not surprising. Likely their findings will be useful for those who organize staff development programs for active and pre-service teachers.

Experiential learning is key to teaching STS. Students should interact with technology and think critically about it. The distinction Brusic (1992) draws is that for the learning to qualify as experiential, it is necessary for the student to study *in* the technology, as opposed to studying *about* the technology. Through this, the student is thrust into the role of the user of technology; the experience becomes person-centered, experiential, and helps the student to derive a sense of

ownership in the activity.

Research Findings Supporting STS

The research base supporting the STS field is fairly substantial. Schibeci (1990) found that adults display very little in the way of basic scientific and technological literacy. The implications are obvious: The traditional system has not worked effectively in creating a scientifically educated citizenry. With this as a sample of evidence suggesting that current efforts in science and social studies are (virtually) futile, then the case for the aggressive implementation of STS is given a greater imperative.

The teacher's need for more training in terms of their exposure and implementation of the STS program was suggested by Yager, Mackinnu, and Blunk (1992) and confirmed by Rubba (1990). Rubba examined also the dynamics of teacher-teacher interactions and suggests that there is a strong need for interdisciplinary cooperation between teachers if STS is to be successful.

Another study involving teachers and their perceptions regarding STS again confirmed the concept that teachers need a stronger base of understanding before attempting to use the STS system (Rhoton, 1990). In this case, the specific findings were that teachers had a high degree of perceived need in terms of both adequate information and preparation. Others (King & Thompson, 1999) have collected and analyzed data that further supports this issue.

A conflict was found with regard to students and teachers in their respective abilities to understand the content and to communicate the content effectively (Rubba, 1989). Data indicated that while teachers were confidant in their own ability to understand STS content and to teach it effectively, their students' abilities to understand the content was not confirmed by the data. The author suggests that teachers' perceptions of high interest activities are not consistent with what students perceive as high interest activities. The suspicion arises that teachers, in general, have a high degree of need in the area of STS education.

Teachers apparently have difficulties understanding STS and implementing STS in a fashion consistent with their student's interests. This finding was derived from a set of students in Canada. Students also have difficulty in their comprehension of content and process after enrollment in an STS type course (Aikenhead, 1987; Aikenhead, Fleming, & Ryan, 1987). Two suggestions were made regarding the wide range of both accurate and inaccurate perceptions regarding the student's science knowledge. First, the type of assessment device needs to be improved to genuinely measure what students are learning. This can then be used as a diagnostic instrument to improve their learning as it is taking place. Secondly, a move toward a more authentic teaching and assessment of science classes is being implemented to help reduce the number and degree of misconceptions.

Despite the potential of STS and its demonstrated level of success, it is surprising that it has not had wider implementation.

Among elementary students, Thirunarayanan (1998) determined that elementary students can develop meaningful conceptions among science, technology, and society related topics that offer a personal relevance to themselves. However, in terms of environmental issues, they still evidenced some difficulty expressing clear conceptions of the relationships among the issues.

Dass (1999) provided a comprehensive overview of his attempts at developing student understanding and implementation of an STS-related project for preservice teachers. By infusing an STS component into the methods course experience, students are given the support and guidance to effectively utilize this approach to curriculum design and instruction. Basing his work on a constructivist approach, classroom activities were divided into phases of invitation, exploration, proposing explanations and solutions, and taking action. Other researchers (Milson & King, 2001; Varella, Monhardt & Monhardt, 2001) have confirmed within methods courses the underlying value of Dass' work.

Despite the potential of STS and its demonstrated level of success, it is surprising that it has not had wider implementation. Wraga and Hlebowitsch (1991) suggest that STS needs to be more mindful of practical

concerns in curriculum. Another area of concern not addressed explicitly by Wraga and Hlebowitsch regards the danger of throwing teachers into this sort of "innovation" without proper training and preparation. No matter how high quality or well-intended the efforts to reform, the data discussed above suggests that many teachers are teaching some sort of STS program without a firm knowledge base. STS is a worthwhile and powerful way to educate students on more levels than merely discrete bits of content. It is essential that the teachers be prepared to do so.

Working Toward the Vision: Infusing STS into NIU Coursework

Heeding the warning noted above, in the last several years faculty at NIU have worked on making STS a focus of pre-service teacher education. Beginning with Milson and King's work looking at the development of STS experiences for pre-service teachers, Henning and King seek to not only innovate the social studies and science methods course experiences for students but to involve classroom teachers meaningfully in the process of educational reform through STS.

Previous Work at NIU

Milson and King (2001; King & Milson, 2003) reported on an initial STS collaboration at NIU. Their goal was to have pre-service teachers engage in an STS investigation of their own design, experiencing STS-oriented inquiry in a manner that would adequately prepare pre-service teachers to teach in an STS-oriented manner. Students participating in the project brainstormed appropriate STS projects and, from the list the class composed, selected a topic of interest. Once the topic was selected, they investigated the multiple perspectives the issue offered and came to a greater degree of informed understanding of the topic and its elements.

Having reached an understanding of the topic and its STS-related implications, the students were asked either to engage in some sort of social action related to their deepened perspective on the issue or to develop a unit outline describing instructional activities that could be used to teach students the information gathered during the lesson. These "social actions" were structured in either of these ways:

(1) The student would compose a letter to a public figure of influence, stating what the student believed to be a prudent action regarding the issue
(2) The student would create an informational display for use on campus to inform NIU students of what they had learned.

The instructors sought to challenge students to create papers/displays that were balanced, examined multiple perspectives, and offered a persuasive explanation of their personal views. The goal was for the students to come to an informed decision that suggested some form of action in response to the issue.

As a result of their participation in this exercise, the faculty judged students as having a greater awareness of STS as a theme for instruction as well as an enhanced understanding of the purpose of STS and its applications in various content areas. More subjective measures of students' success revealed some concerns. In general, students were reluctant to consider multiple perspectives—as if their intellectual and emotional comfort zone was too strongly challenged. Related to this, students were reticent in taking an opinion on an issue even to the point in one case of asking the person to whom the letter was sent, "now that I've shared the facts with you, what do you think we should do about this issue?"

Other aspects of their letters and display artifacts demonstrated a lack of understanding of government. At times, it was amusing (i.e., sending a letter to Mayor Daley of Chicago regarding an issue in the community of Naperville). In other ways, the simplistic notion that *any* problem in society could be redressed by the creation of a new law gave rise to concern among the faculty as to what the students really *did* understand about the processes of the government.

In the last several years faculty at NIU have worked on making STS a focus of pre-service teacher education

Given these experiences, reflection on the project suggested that better results for students might be obtained if the topic for investigation was determined by the faculty members drawing the broad topics for investigation from the science and social studies standards. Since a number of student-investigated projects did not have a clear STS element in them (despite faculty encouragement to revise them), there is hope that a faculty-selected set of topics will produce better results, at least while students are learning how to develop and implement STS-informed, instructional experiences.

Upcoming Projects

Based on the initial work of King and Milson in an NIU context, social studies methods and science methods courses are piloting a refined STS program at the pre-service level in Fall, 2003. In this program, pre-service teachers are assigned an STS topic that is compatible with a particular school district's curriculum. This district has a teacher-developed, interdisciplinary, language arts/social studies curriculum and is open to integrating STS into the elementary curriculum. Thirty pre-service teachers are working together to create STS units that they can implement during their clinical teaching experience in the semester prior to student teaching. Building on the prior work of King and Milson, this initiative recognizes that pre-service teachers need curriculum development experiences that are relevant and appropriate to the grades that they may be teaching.

Expanding on the work of Yager and Penick (1991) that found that Iowa teachers most valued the interdisciplinary nature of STS, the social studies and science faculty are collaboratively teaching and assessing the STS project. Pre-service teachers' knowledge of STS is fostered in both their social studies and science methods classes. The curriculum units that pre-service teachers write are submitted to both their social studies and science professors. Despite the challenges of implementing STS lessons in an already burdened elementary school day, pre-service teachers at NIU will have the opportunity to practice teaching what they have created with real elementary students. In this way, NIU is responding to the call from Ruba (1990) to give teachers more experience implementing STS programs. But pre-service teachers are not the only concern in this program. Elementary students' growth in their knowledge of STS, process, and thinking skills will also be measured. Yager, Mackinuu, and Blunk (1992) showed that elementary students improved in their process and thinking skills, and NIU pre-service teachers will be inquiring about these issues as well as their own growth.

In Summer and Fall, 2004, NIU will be expanding its STS efforts to collaborate with teachers who are interested in exploring science/technology/society issues in their own lives and in their classrooms. Interested teachers will be invited to take doctoral-level courses in science-technology-society which are co-taught by social studies and science faculty. In Summer, teachers will pursue a science-technology-society that concerns them. After gaining a deeper, personal understanding of STS, teachers will design an STS experience that they could share with their students in the Fall. Then, NIU faculty will support the implementation of this curriculum and provide a doctoral-level course where teachers can share their experiences. Through collaboration among faculty in social studies education, science education, and environmental education, the department is currently developing a doctoral degree with an emphasis in STS issues.

Interested teachers will be invited to take doctoral-level courses in science-technology-society which are co-taught by social studies and science faculty.

Conclusion

As the pace of scientific discovery increases, the imperative mounts for informed citizens to monitor the affects of technological and social changes in the world. The time to begin learning about science, technology, and society is in the elementary school. Northern Illinois University faculty are committed to preparing elementary students and teachers to be leaders in the 21st century.

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The Outro: What's the Point?

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Over the past several years, faculty in the Department of Teaching and Learning at NIU have been actively working to realign the curriculum for both pre- and in-service teachers with a variety of different standards—content, assessment, and teacher—in an attempt to better meet the needs of an ever changing society. To effectively prepare teachers with the knowledge and skills required to successfully educate students, we must grapple with a fundamental question: What's the point of education? Upon querying a variety of faculty in the College of Education and a number of graduate students in the curriculum leadership program, the consensus was that the purpose of education is to educate good citizens, to learn democratic habits of mind, and to promote life-long learning. Thomas Jefferson and John Dewey would be proud. According to Deborah Meier (2002), "It is in schools where we learn the art of living together as citizens, and it is in public schools that we are obliged to defend the idea of a public, not only a private interest" (p. 176). For the most part, the business community concurs with this purpose, emphasizing skills such as analytical and critical thinking, collaboration, and teamwork.

Chatterji (2003) related the elements of the US Department of Labor's instructional goals for high school graduates, stating that by the end of high school, students should be able to engage in the following behaviors:

- Decision-making

- Problem-solving
- Communication
- Mathematical applications
- Learning how to learn
- Cooperative teamwork
- Leadership
- Self-management (p.16).

Chatterji uses these to underscore the point that assessment increasingly relates to more abstract, process-oriented skills in addition to the traditional content goals often associated with testing and assessment. It is also abundantly clear that movement across the disciplines—in professional educational organizations—is more toward process-oriented and problem-solving skills. While some of these critical thinking and problem solving goals are present in the elements of No Child Left Behind (NCLB) (2002), the focus externally has been on "making the grade" with respect to the coming sets of high-stakes tests.

However, these purposes, presumably shared by educators and the business community seem to be lost in what Meier refers to as "an era of testing and standardization." While faculty in the Department of Teaching and Learning strive to prepare future teachers and provide professional development to practicing teachers for educating today's students, we must recognize the current political, economic, and social realities within which we currently operate; but we must be true to the historically constant purpose of education. In other words, we must provide balance between the need to "meet or exceed" on standardized tests with the need to excel in life until such time as we are able to effect future policy to de-emphasize standardized testing.

Although for the most part, we agree with the content of the standards, we beg the question: Is teaching and learning literally about the standards, **or** should we be focusing on the content identified in the standards as tools for organizing instruction around broader universal themes? If we are to educate students based on the ideals of Jefferson and Dewey, lifelong learning is essential.

And a more pressing issue, should academic achievement be based on test scores? It appears that the tide is turning in this area as both local and national reports abound on the gaping "loopholes" in NCLB. A front page article in the September 28, 2003, *Chicago Tribune* claimed, "Schools toying with test results. Some states meet standards with art of statistics." In the September 24, 2003, edition of *Education Week*, the commentary was titled, "The 'No Child' noose tightens—but some states are slipping it." Clearly some policymakers and education officials have come to realize that achieving a particular percentile on standardized tests is neither the purpose of education nor the panacea to curing the ills of education. Perhaps NCLB has run its course, and its time to revive the original intention of the ESEA, i.e., go back to the "basics" of striving to provide a quality education for all students.

So, where do we go from here? Our mission, and we've chosen to accept it, is to prepare and develop pre- and in-service teachers to recognize the realities within which we teach and learn while balancing the needs of educating a diverse population of learners. At times this proves to be a "long and winding road." We believe it's a road well worth traveling.

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For more information about NIU's course offerings, programs of study, or how they continue to prepare teachers for the challenges ahead, please contact any of the faculty whose work appears here. You are also welcome to visit the LEPF Department's home page at http://coe.cedu.niu.edu/tlrn/

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