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ABSTRACT

This paper outlines how shared decision making among teacher education faculty, preK-12 educators, and the Science and Mathematics faculty at Wright State University successfully led to the preparation of quality educators. It offers a historical overview of the Wright State redesign efforts, then: examines the university's collaboration for teacher content preparation; clarifies how learned society guidelines and state teacher performance requirements (Praxis III) are integrated into an electronic portfolio template; demonstrates the documentation of content and teaching proficiency via electronic portfolios; and presents the evaluation process used in a multi-faceted renewal project. It describes: the university-school district partnership agreement; the Professional Educator Program (the culmination of the college's efforts to be a collaborative partner in teacher preparation and professional development of K-12 practitioners); lessons learned; experiences using Praxis to evaluate beginning teachers' skills; and the Praxis-based electronic portfolio. The paper also explains the integration of science and mathematics with the Praxis III model. Evidence indicates that the Professional Educator Program is dynamic and enriching for beginning teachers. The interns' Praxis-based electronic portfolios demonstrate teaching proficiency in four crucial domains and visually display their commitment and ability to teach. (Contains 21 references.) (SM)

Triad Simultaneous Renewal: A Marriage with Teacher Education/Science & Math and PreK-12

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Triad Simultaneous Renewal:
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Introduction

This paper outlines how shared decision-making among teacher education faculty, PK-12 educators and the Science & Mathematics faculty successfully lead to the preparation of quality educators. The Wright State University (WSU), a metropolitan community-focused university, part of the National Network for Educational Renewal (NNER), was selected in 1994 as one of 18 institutions (see pg. 4) whose process of teacher education reform makes extensive use of PreK-12 sector involvement. This university successfully passed NCATE review in the fall of 1996, and has developed several joint appointments between the College of Education and Human Services (CEHS) and the College of Science and Mathematics (COSM). This pivotal factor makes it possible to insure that Learned Society Guidelines are infused into content courses of both elementary and secondary pre-service students.

In addition, the professional experiences of teacher education interns who enter the field from prior professions or training are discussed. Candidates are immersed in an intensive fifteen-month program, which compresses the traditional three years of professional training into a full-time internship. This program learned significant lessons that should be shared with other teacher educators.

In addition to professional competence, job stress, student conflict, and family as well as personal pressures that must be mastered by these interns; they must also learn and show performance on the Praxis III Domains and 19 Criteria. These 19 Criteria are demonstrated through an electronic portfolio. Further, the paper

addresses the use of PRAXIS III/Pathwise in the training and orientation of both Professional Educator Program (PEP) interns and professional clinical faculty mentoring these students. The State of Ohio passed legislation (1998) supporting PRAXIS as a performance based vehicle to license educators. In anticipation of this important shift from certification to licensure, Wright State University (WSU) developed a format for the electronic portfolio mirroring PRAXIS III criteria and requiring the PEP interns to develop an electronic portfolio using this template.

The following objectives frame the paper content:

1. To present the university's inter-collegial collaboration for teacher content preparation.

2. To clarify how learned society guidelines & state teacher performance requirements (PRAXIS III) are integrated into an electronic portfolio template.

3. To demonstrate documentation of content & teaching proficiency via an electronic portfolio.

4. To present the evaluation process used in a multi-faceted renewal project.

As the twentieth century drew to a close, educators were held accountable for school improvements that, supposedly, occurred during the last two decades. The public wants evidence that their schools are improving. The following renewal project provides such evidence.

Historical Overview of Wright State Redesign Efforts

Partners Transforming Education: School•University•Community is a process model to plan and articulate the simultaneous renewal of the education of educators and the PreK-12 sector. The College of Education and Human Services', Wright

State University, formal involvement in this ongoing process to bring about systemic change to Pre-K higher education began in January 1992. *Partners Transforming Education* involved over 430 people representative of the PreK-12 sector, business, human service agencies, the University, the military, and others, to give input on the changes needed to create a new culture of collaboration that is responsive to society's needs.

Individuals from the PreK-12 sector, working with this initiative, are classroom teachers and administrators representative of a number of school systems within the Dayton metropolitan region that Wright State University serves. With the amount of criticism aimed at the public schools and the growing concern about teacher education programs, educators can no longer work in isolation. The College faced the challenge and invited not only the PreK-12 sector to join in problem solving, but turned to the University at large and the Community to work collaboratively in building a program that prepares better qualified pre-service teachers and provides renewal of PreK-12 and higher education faculties and administrators simultaneously.

This "simultaneous renewal" concept of both PreK-12 and Teacher Education surfaced as an essential component of advancement efforts. No partnership can exist where only one partner grows and benefits. As Goodlad establishes in *Educational Renewal: Better Teachers, Better Schools* (1994) working together must be mutually advantageous.

Partners Transforming Education is moving forward with newly designed teacher education curricula, a conceptualized post baccalaureate professional school

model, and formally established partnership sites within PreK-12 schools. Classroom teachers, school administrators, arts and sciences faculty, education and human services faculty, and community representatives are continuing to serve as integral collaborators in the ongoing process for renewal. All partners are actively involved in professional development activities and a re-designed governance structure. The partner schools and districts also identified agendas of specific goals and improvements. The partnership goal focuses on moving the agenda of both parties forward. Funding from the DeWitt-Wallace Foundation provided the funding to assist all partners in simultaneous renewal.

The University/School District Partnership Agreement

As suggested by the NNER, WSU developed a written *Partnership Agreement* with school systems requesting partnerships (see Attachment A). The *Agreement* serves as a working document to articulate the purposes and direction of the collaboration. The four partnership purposes established by the NNER and supported by the WSU Partnership are:

1. Creating and sustaining learning communities which enables PreK-12 learners and partners to construct meaningful knowledge;
2. Preparing Educators;
3. Providing Professional Development; and
4. Conducting Inquiry (*NNER Compact For Partnership Schools*, 1994).

After several drafts, the final working document was agreed upon by both administrations. The document includes a mission statement. Also included in the

document are: Partnership Goals, Partnership Principles, Partnership Outcomes, Partnership Supporting Actions, Partner Commitment and Governance Principles. An Intern Policy Statement is attached to the document to assure clear understanding of joint expectations of the university students.

The Professional Educator Program

WSU is a state-supported university dedicated to the educational, social, and cultural needs of the Dayton area with an enrollment of 17,000 graduate and undergraduate students. WSU is especially proud of the Professional Educator Program (PEP). PEP is the culmination of the college efforts to be a collaborative partner in teacher preparation and professional development of K-12 practitioners.

The PEP uses the medical school model that permits a select group of post-baccalaureate students to practice the art and science of teaching in a clinical environment. The strength of the program is that the interns experience the total ecology of the school beginning the summer prior to and concluding the summer following the school year. The interns earn their teaching certificate (license) in 15 months of intensive field-base preparation. They build on their undergraduate degree to become a certified/licensed Ohio teacher.

The PEP cohort consists of student interns who are housed in public schools. The cohort includes persons who have enjoyed professional success in the military, business, and other careers. Teachers who voluntarily complete a workshop serve as clinical faculty members in partnership with WSU. The clinical faculty provide a learning laboratory that is rich in problem solving and collaborative teaching and

learning opportunities. These clinical faculty mentors supervise the interns in cohort groups and demonstrate dynamic teaching. As a result, public school students in primary through 12th grade gain from the fluid and cooperative interaction of professional educator interns, clinical faculty and other school personnel.

Lessons Learned

As with any educational experience, reflections must illustrate both positive and negative lessons learned. We are most appreciative for Dr. Goodlad and his leadership team for the many lessons they learned, and subsequently shared so that we benefited from their experience.

One of the richest ideas articulated by the Goodlad and senior associates' philosophy was the need to establish governance or advisory councils. Advisory councils proved imperative. The advisory council, representing all the key players (interns, teachers, principal and WSU faculty) in the program made decisions about the day to day operation of the PEP and building renewal efforts. Major decisions coming out of the council included: an attendance policy and procedures for professional days, absenteeism and personal days, substituting procedures, and renewal trip arrangements. Another idea adopted from Dr. Goodlad, et. al., supported having the Partner School collaborate on renewal. The Advisory Council identified a year long renewal effort which they desired to explore.

Other of the many positive lessons learned include:

- *Interns highly valuing all field internship work;*
- *Teachers validated that interns made major differences in PreK-6 students lives;*

- *Teachers were motivated to undertake extensive renewal activities;*
- *Teachers verified that they were more focused on personal excellence when entrusted with apprenticing a future educator;*
- *University faculty experienced the real world of day to day teaching;*
- *Intern problems were addressed quickly through concern conferences (five in fall term alone); and*
- *Interns bonded with each other as a support group.*

The list of the liabilities was approached in a positive manner. It highlights those elements which must be addressed. These include:

- *Interns must identify financial resources and support system for the year.*
- *Interns and clinical faculty due process for disagreements/concerns must be clarified.*
- *Teachers desire input into university curriculum and practice;*
- *Better avenues for communication must be established.*
- *More university attention is needed at the school site.*
- *Flexibility and civility must be stressed in summer coursework: i.e. classroom placement, syllabi or participants.*

PRAXIS/Pathwise

In an effort to assure Ohio students, parents and communities that the state's teaching force has the necessary knowledge base and proficiency to adequately address students needs, the State of Ohio decided to use *The PRAXIS SERIES: Professional Assessments for Beginning Teachers*. This series constitutes a system designed to assess the skills of beginning teachers. While one component of the *PRAXIS SERIES*, the *PRAXIS II: Subject Assessments*, is intended to assess

prospective teachers' depth and knowledge of subject matter and pedagogical principles, newly adopted state licensure standards mandate a performance-based evaluation of teaching skills from within the context of a specific classroom setting.

The PRAXIS III is a complementary assessment developed with this specific context in mind. Founded upon the basic assumptions that effective teaching requires both action and decision making and that learning is a process of active knowledge construction, the assessment was developed to reflect both the art and science of teaching. Moreover, it was designed by the Educational Testing Service (ETS) to be a reliable and valid measure of teaching performance likely to meet the rigors of subsequent legal challenges. The PRAXIS III criteria were derived from a national research base with input from 2,000 educators from diverse backgrounds from across the country. It was developed for use in teacher licensing decisions made by states or local agencies empowered to license teachers and was not designed for the purpose of employment decisions. As such, the intent of ETS was from the outset to develop a national consensus on the important aspects of teaching and to translate that consensus into a framework for decision-making which is both informed by theoretical and policy perspectives of both educators and researchers.

The PRAXIS-Based Electronic Portfolio

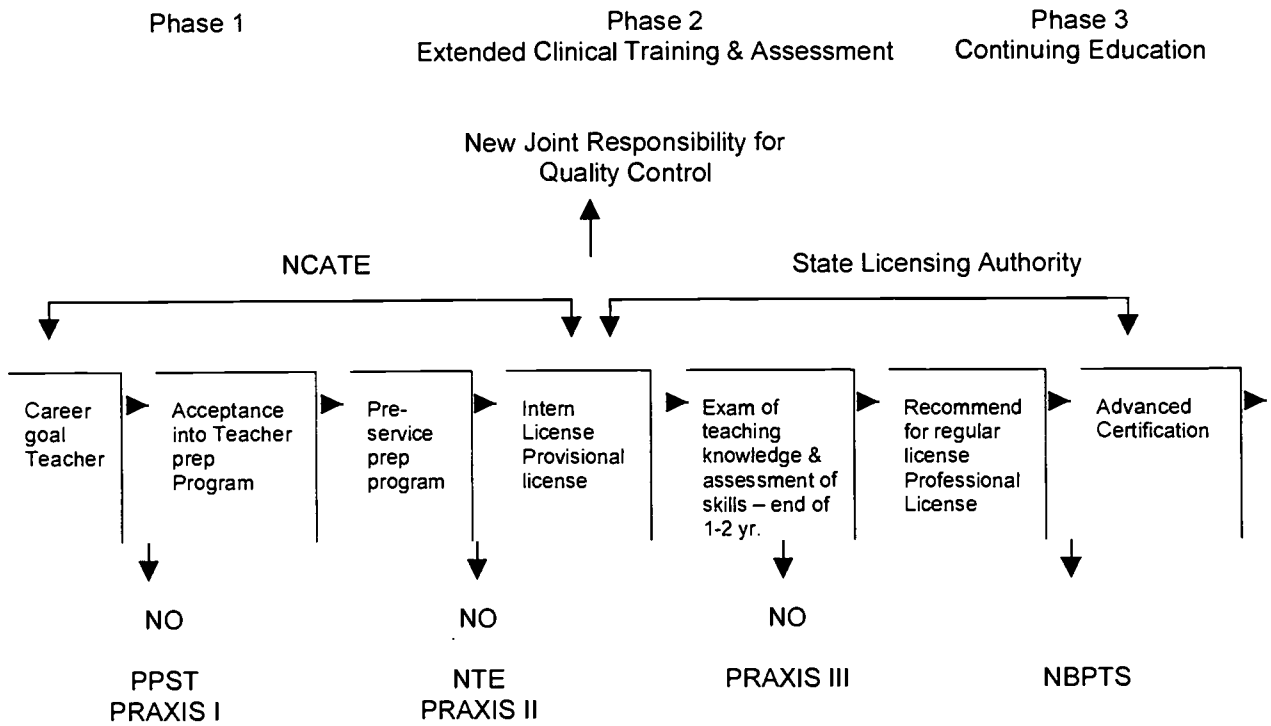
NCATE and other professional agencies have challenged Teacher Preparatory programs to designate their instructional model. WSU identified *Teacher as both a developing professional and problem-solver/decision maker* as their model. Along with this model, the college supported a model assessment strategy to track the students'

professional development throughout the PEP program. The *PRAXIS-Based PORTFOLIO* serves as a pilot project in hopes of clarifying interns' progress toward professionalism (See Attachment B).

The State of Ohio, in collaboration with the Educational Testing Service (ETS), formulated a Professional Educator Assessment Framework (Figure 1).

Figure 1

Ohio's Professional Educator Assessment Framework



During Pre-service Preparation, Phase I, all Teacher Education Programs must be approved by the NCATE. Pre-service students, after establishing teaching as their coal take the ETS PRAXIS I exam (previously PPST). PRAXIS I, a pencil and paper exam, assesses content. After pre-service preparation (see PEP schedule – Attachment C) students are mandated to successfully pass PRAXIS II (previously

the National Teacher exam – NTE). Ohio's test score requirements are challenging. Depending on the various content areas the cut-off scores are from first to third highest within the 50 states (i.e., math first highest, or English second highest).

Once PRAXIS II is successfully passed, students receive an interim license, the Provisional Licensure, permitting up to 2 years of classroom teaching. This begins Phase II. During these two years novice teachers must show performance proficiency in the PRAXIS Domains by acceptably completing PRAXIS III. Once PRAXIS III mastery is accomplished teachers are eligible for Professional Licensure.

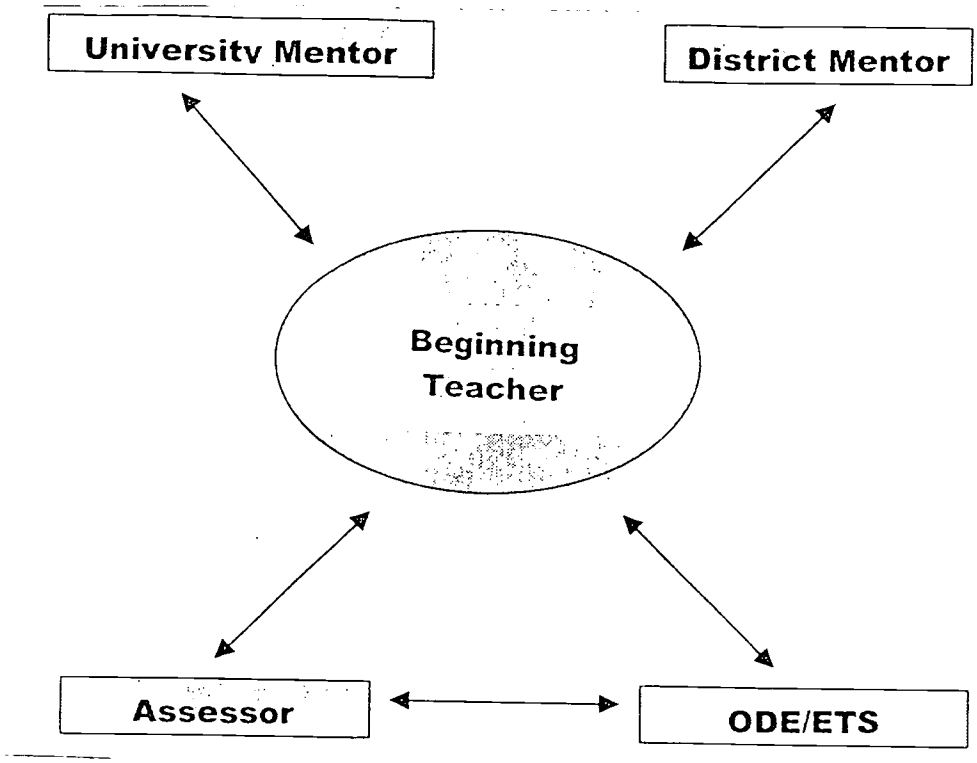
Ohio encourages experienced educators to acquire advanced certification via the National Board for Professional Teacher Standards (NBPTS). The state provides funds for National Certification as well as financial awards for satisfactorily completing the certification.

Ohio conducted a pilot study outlining a support system for PRAXIS III. The beginning teacher received support from both a University mentor and a district mentor. Two different PRAXIS assessors observed the beginning educator (see Figure 2). The methodology used by PRAXIS III includes:

- Direct observation of classroom practice.
- Review of written documentation prepared by the teacher (A Class Profile identifying class dynamics and an Instructional Profile clarifying teaching procedures.
- Semi-structured interviews (both Pre and Post Observation Interviews).

Figure 2

PRAXIS III – Pilot Study Outline



Generally, the assessment results in a rubric (with three numerical levels). The assessor collects evidence regarding the 19 criteria. If the evidence demonstrates a high level of mastery of the skill the score results in a three. If the evidence indicates rudimentary criteria mastery a score of two results. If the educator's evidence indicates lack of mastery, a score of one results. A one might also illustrate that the criteria was violated. Also a score of 1.5 or 2.5 might occur if evidence is close but somewhat questionable or limited. In other words, a lower level might be met but the higher level might not quite be evidenced. Another pilot assessment is scheduled to be activated statewide by 2002.

Integrating Science with PRAXIS III Model

At WSU we believed that PRAXIS, designed to be generic to all disciplines, would be enhanced by content mandates from the various learned societies. Science was the first content area where enhancement of the 4 Domains was attempted. Attention was given to the NSF report (1996) entitled, "Shaping the Future: New Expectations for all Understanding Education in Science, Mathematics, Engineering and Technology". The following are the key summations of this report:

- College science and math programs should be refocused in order to better educate the 80 percent of the students who do not major in the science discipline.
- All students should learn these subjects by direct experience with the method and processes of inquiry.
- Any sustained national effort to improve science and math achievement eventually must address the quality of teacher education at the undergraduate level.
- Few teachers, particularly those at the elementary level, experience any teaching that stresses the skills of inquiry and investigation, they simply never experience those methods in their teaching.
- Faculty must actively engage their students preparing to be K-12 teachers (as well as others) by assisting them to learn not only science facts, but also the methods and processes of research, what scientists and engineers do, how to make informed judgements bout technical matters, and how to communicate and work in teams to solve complex problems.
- While some institutions already are making the changes needed to help them meet that goal, most are not.

Traditionally at most universities two entities, the College of Science & Mathematics (COSM) and the College of Education & Human Services (CEHS) failed to interact well. At WSU we are appreciative of our intra-collegial

partnerships. Over the last 15 years several noteworthy collaborations resulted. Of particular interest to the issue of best practice are:

1. Joint faculty appointments which resulted in improved science and math content courses for pre-service teachers as well as pedagogical framework within these courses.

2. Infusion of learned society standards into the PRAXIS Domains.

Eight joint appointments exist at WSU currently. Three of the eight exist between the Mathematics Department and Teacher Education (TED). These tenure lines are secured for math educators rather than mathematicians. One math educator line rests solely in the Mathematics Department. The other two math lines are split between the two colleges. The first split position has the majority of responsibility to the Education Department, while the second position responsibility lies within the Mathematics Department. The remaining five joint positions are housed between the sciences and teacher education. Two of the science lines reside in Biology. Originally these Biology lines were mirror opposites. One Biology educator has two thirds of their appointment in Biology and one third with TED. The other Biologist was housed in TED, having two-thirds appointment there and one-third in the Biology Department. The third, physical science educator, is split 1/9 in TED and 8/9 in the Physics Department. The fourth, earth science educator, is split one third in TED and two thirds in Geology. The fifth appointment is a collaboration between TED and the Chemistry department. This impressive group of educators has secured over $900,000 in grant funding. These funds permitted major pre- and inservice training in appropriate content and science education pedagogy. Two of the three math

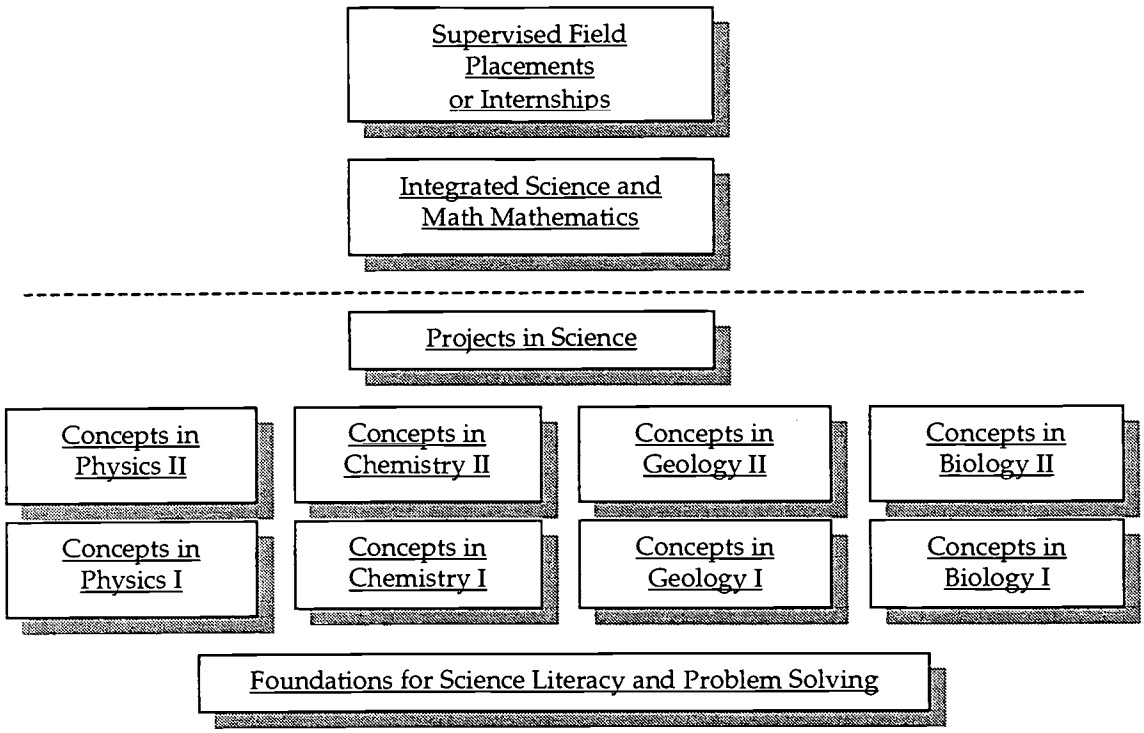
educators have received tenure and promotion. Four of the five science educators are moving through the promotion and tenure process successfully this year.

These science and mathematics educators are producing a core of "best practice" public school teachers who are taking appropriate graduate and undergraduate courses and inservice workshops. To account for "best practice" the learned society standards have been infused into the PRAXIS Domains and criteria documentation in certified teachers' portfolios. An overview of the path to these portfolios will assist with understanding.

With the afore mentioned NSF points in mind, the joint faculty in science education developed a conceptual framework for undergraduate elementary pre-service students at WSU. The framework contains six levels. The first level consists of a foundational course aimed at developing initial science literacy and problem solving. The second level involves four conceptual units in physics, chemistry, geology and biology. The third level builds on level two advancing knowledge and skills in the four science disciplines (physics, chemistry, geology and biology). The fourth level requires students to complete projects in science. The next two levels involve science teaching application. The fifth level integrates math and science methods. The capstone level is supervised field and intern placements (see Figure 3).

Figure 3

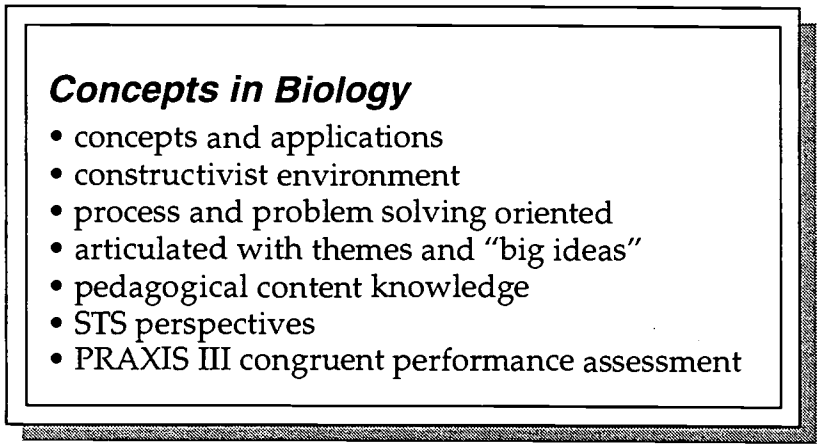
WSU's Conceptual Framework



To further clarify the learned society information infusion the following selection serves as an example. Only one of the four science disciplines is selected, that being Life Science. Consideration for the content courses was Project 2061 recommendations, the National Science Education Standards and the Ohio State Science Framework. The content is presented in a constructual perspective. Being that the content presented in learning cycles, as exploratory experiences with the content first presented in more traditional forms. With a process orientation, content is analyzed by processing and story perspectives. Meaning a student reflects on Charles Darwin's story as well as the process of evaluation he designed. WSU has accepted the philosophy that less is more. Thus, content must be narrowed down to

key concepts in biological science. Figure 4 details the concepts we identified that were necessary for biology.

Figure 4



The next step was to address the elementary public school age science standards. The K-4 Life Science standards, then the Fundamental Concepts and Principles, followed by some common misconception as well, are points to remember. Subject matter for K-4 Life Science content standards are: characteristics of organisms; life cycles of organisms; and organisms and environments (see Figure 5).

Figure 5

Fundamental Concepts and Principles for K-4 Life Science Standards

1. The Characteristics of Organisms
   - Organisms have needs.
   - Many organisms live in many types of environments.
   - Organisms have different structures, which serve different functions.
   - Organisms exhibit behaviors which results from senses detecting internal and external cues.

2. Life Cycle of Organisms
   - Stages in a life cycle.
   - Characteristics are inherited from parents to offspring.
   - Some characteristics are acquired and not heritable to offspring.

3. Organisms and their Environments
   - All animals depend on plants as the main producers of food.
   - Organisms behaviors are adapted to their environments both living and physical.
   - When environments change some organisms can survive and others die or migrate.
   - Organisms change their environments both positively and negatively.
   - Humans depend on natural and constructed environments and impact their environments both positively and negatively.

Figure 6

Some Common Misconceptions

- Attributing anthropomorphic explanations to organisms.
- Associating life with activity or movement.
- Using mutually exclusive classification schemes rather than hierarchies.
- Not understanding the continuity of stages of development in life cycles.
- Naïve beliefs about inheritance e.g. traits come from only one parent or are a simple blending from both parents.

Points to Remember

Building concepts and understandings through direct experience with organisms, life cycles, and habitats. Concentrate on the characteristics of organisms, their life cycles and the interactions within their environments. This should foster an appreciation for the diversity of life and organisms interdependence on biotic and abiotic environmental factors. Observations of organisms should be focused around those in the child's house, school, and/or their immediate natural world.

The intermediate grades 5 - 8 are likewise, addressed in Attachment D.

For teacher evaluation a rubric for science was extrapolated from NSTA, AETS, NSES Principles and Frameworks. The content questions posed were:

- a conceptual framework consistent with the NSES and the Ohio State Science Model?
- a thematically unified framework across disciplines?
- understanding of concepts within the context of laboratory?
- use of mathematics and statistics to analyze and explain data?
- understanding how concepts can be applied to personal, social, and technological issues?

As Danielson (1996) in Enhancing Professional Practice states,

> "A framework for professional practice offers the teaching profession the same definition long afforded other professions. A framework answers the questions, 'What does an effective teacher know? What does the accomplished teacher do in the performance of her duties?' A framework is useful for all members of the profession, for those just entering, to veterans who may have lost enthusiasm for their work, to master teachers who are trying to convey their wisdom to others." (p. 6)

Examples from the performance-based assessment rubric from PRAXIS III married with concepts in Biology as well as CASE-AETS/NSTA appear next (see Figures 7 and 8).

Figure 7

Performance-based Assessment Rubric
"Concepts in Biology"
(PRAXIS III / Pathwise)

Planning and Organizing Content Knowledge (PRAXIS III)

A. Student's Background
Has the student demonstrated they are knowledgeable of ways to obtain and assess information about student's background knowledge and experiences, cultural diversity, and/or individual differences?

1 2 3 4 5

Has the student demonstrated knowledge of why it is important to be familiar with student's background knowledge and experiences, cultural diversity and/or individual differences?

1 2 3 4 5

B. Learning Goals
Has the student demonstrated an ability to articulate clear and appropriate learning goals?

1 2 3 4 5

Has the student demonstrated an understanding that they are knowledgeable as to why their learning goals are appropriate and/or differentiated for groups and/or individual students?

1 2 3 4 5

Figure 8

Performance-based Assessment Rubric
"Integrated Science and Math Methods"
(CASE-AETS/NSTA)

Intern/Student Teacher Evaluation Based on NSTA/AETS Principles and Frameworks

Standards for the Education of Teachers of Science: Content

Does the student demonstrate a strong and significant development of a conceptual framework within their discipline including major concepts consistent with the NSES and the Ohio State Science Model?

1 2 3 4 5

Does the student demonstrate a development of a thematically unified framework of concepts from across all the traditional discipline of natural science?

1 2 3 4 5

Does the student demonstrate an understanding of concepts within the context of laboratory activities, teaching, investigating and problem solving?

1 2 3 4 5

Does the student demonstrate an ability to use mathematics and statistics to develop fundamental concepts related to the natural sciences to analyze and explain data, and to convey the nature of science to students?

1 2 3 4 5

Evaluating Partnerships

The philosophy of collaboration/renewal in partner schools is based on a belief that this effort is an integrated process and requires continuous study over time. As used in this study, the evaluation process required a model that utilized a

number of approaches to secure data from all teachers, students, administrators and university participants. For the purposes of this paper, evaluation is defined as "the process of clarifying a set of informational needs, and collecting, analyzing, and reporting the information to interested parties". The evaluation addressed the following research questions:

1. What impact have renewal efforts had on the practice of professional teachers, administrators and interns in the partner schools?

2. What renewal values have accrued to participating partner schools and the university in relation to professional growth, performance assessment of first year teachers, and revising professional development programs for teachers?

3. What factors are impeding acceptance of a renewal philosophy in partner schools?

After review of the evaluation questions, a design document was prepared that set forth detailed evaluation methods.

The conceptual framework for assessing the impact of educational renewal and its effect on all participants represents an attempt to measure causal factors, which determine how individuals related to the goals of this project. Specifically, we were looking for determinants of implementation. These determinants, including for example the school district's experience with renewal, adoption strategies, and organizational capacity for change, operate to facilitate or impede the implementation of the renewal philosophy. The quality of implementation interacts with the opportunity to infuse the Goodlad 19 Postulates (Goodlad, 1994) in the conversation about renewal.

The complex nature of this evaluation reflected the program's complexities and was reflected in turn by the variety of instruments used. Data collection involved the use of multiple information sources:

- Observation of participants by a trained observer at advisory group meetings.
- Analysis of archival material, e.g. minutes, logs and other records.
- Focus group interviews of selected teachers, school administrators, university faculty and interns.

From our analysis of archival materials, minutes, notes, logs and other records, it appeared that renewal manifested itself along essentially five dimensions:

- Changes in tangible resources – facilities, staff, equipment and materials.
- Changes in intangible resources – staffing assignments, organizational alignments, and intern groupings.
- Changes in knowledge and understanding on the part of all participants – clinical faculty, school administrators, university faculty, university administrators, and PEP interns.
- Changes in role/behavior of participants.
- Value internalization – commitment and attitudes toward renewal.

The portion of this evaluation process focused on valuable internalization and documented changes in knowledge/understanding of NNER renewal postulates as cited through content analysis of notes, minutes, logs and other records. In summary, results from content analysis indicate:

- Organizational concerns.
- Teacher failure to understand renewal.
- NCATE requirements and audit.

- Faculty role, e.g. experienced teachers felt more comfortable with role as mentors.

A total of seven functioning advisory groups were involved in governance issues for this effort.

In Summary

Evidence indicates that this "Professional Educator Program" proved dynamic and enriching for beginning practitioners. These interns have been exposed to and participated in over a year of field experience. They are ready; their PRAXIS-based electronic portfolios demonstrate teaching proficiency in the four crucial domains and visually display their commitment and ability to teach and make a difference in students' lives. The public can ask if these interns are more competent teachers, and we can answer with confidence that these educators are most certainly better prepared and their electronic portfolios serve as authentic assessments of the effectiveness of the PEP model for teacher preparation.

References

Bird, T. (1990). The schoolteacher's portfolio: an essay on possibilities. In J. Millman and L. Darling-Hammond, (Eds.), The New Handbook on Teacher Evaluation: Assessing Elementary and Secondary School Teachers, 2nd. ed. (pp. 241-256). Newberry Park, California: Sage.

Bird, T. (1990). Report on the Rating Procedure Used to Assess Portfolios and Assessment Center Exercises for High School Biology Teachers. Stanford, California: Teacher Assessment Project.

Cole, D.J., Ryan, C.W., Kick, F. and Mathies, B. (2000). Portfolios Across the Curriculum and Beyond. Thousand Oaks, CA: Corwin Press.

Danielson, C. (1996). Enhancing Professional Practice: A Framework for Teaching. Association for Supervision and Curriculum Development. Alexandria, VA.

Farr, R. (1990 October). Integrating language arts programs. State Department Leadership Development Institute, Columbus.

Goodlad, J. (1994). Education renewal: Better teachers, better schools. San Francisco, CA: Jossey-Bass Publishers.

Goodlad, J. (1990). Teachers for out nation's schools. San Francisco, CA: Jossey-Bass Publishers.

Killion, J. and Todnem, G. (1991 March). A process for personal theory building. Educational Leader, pp. 14-16.

Milestone one: A synthesis report. (Available from the College of Education and Human Services, Wright State University, Dayton, Ohio 45435)

Milestone two: A synthesis report. (Available from the College of Education and Human Services, Wright State University, Dayton, Ohio 45435) NNER Compact for Partnership Schools. (1994)

Paulson, L. and Paulson, P. (1990, August 15). How do portfolios measure up? A cognitive model for assessing portfolios. Paper presented at the annual meeting of Northwest Evaluation Association.

Rybczynski, M. (1991 Spring). Understanding a portfolio approach to writing assessment. Ohio Journal of English Language Arts, pp. 34-38.

Sizor, T. (1992). Horace's school: Redesigning the American high school. New York: Houghton Mifflin Company.

Shulman, L. (1988 November) "A union of insufficiencies: strategies for teacher assessment in a period of educational reform. Educational Leadership, pp. 36-41.

Shulman, L. Bird, T. and Haertel, E. (1989). Toward Alternative Assessments Of Teaching: A Report of Work in Progress. Stanford, California: Teacher Assessment Project.

Tennessee career ladder better schools program. (1984). Nashville: Tennessee State Department.

Tierney, R. et.al. (1991). Portfolio assessment in the reading and writing classroom. Norwood, MA: Christopher-Gordon Publishing. "Toward High and Rigorous Standards for the Teaching Profession." (1990). Washington, D.C.: National Board of Professional Teaching Standards.

Van Manen, M. (1977). Linking ways of knowing with ways of being practical. Curriculum Inquiry. 6, 205-228.

Wellington, B. (1991 March). The promise of reflective practice. Educational Leader, pp. 4-5.

Wiggins, G. (1991), A response to Cizek. Kappan, pp. 700-703.

Wolf, K. (1991) The schoolteacher's portfolio: issues in design, implementation, and evaluation. Kappan. 73,2 (129-136).

ATTACHMENTS

Dayton Public Schools
and
Wright State University
(College of Education, Human Services
(WSU/CEHS)

PARTNERSHIP AGREEMENT

MISSION STATEMENT

The Dayton Public Schools/Wright State University (CEHS) Partnership mission is to guarantee student success and the simultaneous educator renewal through a collaborative network of interdependent innovative, and diversified instructional services.

PARTNERSHIP PRINCIPLES/ BELIEFS

In order to promote this empowerment, we believe the following to be essential principles for improving the educational process:

1. The future of our country depends upon the effectiveness of public education.
2. Learning is a lifelong process through which individuals and society create and promote change.
3. All members of the school, the university, and the community are learners.
4. Educating is a shared responsibility.
5. Partnerships are collegial, equitable relationships based upon mutual respect and trust.
6. Partnerships are positive, active, flexible, inclusive, and safe.
7. Serving students is our primary focus.
8. Students are active participants in the educational process.
9. Diversity, which is reflective of culture and thought, is essential to the growth and development of the individual and society.

PARTNERSHIP GOALS/CORE FUNCTIONS

To promote educational renewal of school district and university personnel and students.

To promote shared decision making through a collaborative process for a mutually beneficial partnership.

To promote student learning and development by merging theory into practices which have positive influences on student achievement.

To recognize, involve, and collaborate with all aspects of the university, community, human service agencies, businesses, churches, and families.

To work collaboratively as equal partners and receive equal recognition as a result of the partnership effort.

To prepare teachers to become master educators in an urban setting.

To provide a vehicle for the delivery of instruction to PreK- graduate student and teacher preparation.

To jointly developed professional growth opportunities for personnel at the district and university level.

To seek opportunities for financial and human resources.

PARTNERSHIP OUTCOMES

1. Partnership personnel (Dayton Public School and Wright State University College of Education and Human Services) will become proficient in working together collaboratively inside and outside of each institution.
2. Increased National Teacher Education scores of WSU graduates.
3. Increased placement rate of WSU graduates in the urban the public school setting.
4. Successful entry year evaluation (PRAXIS Performance) of WSU graduates.
5. Increased student achievement/proficiency scores of DPS students.
6. Additional grant dollars garnered for WSU/DPS.
7. Increased number of WSU/Dayton Public Schools participants in the Professional Educators Program.

PARTNERSHIP COMMITMENT

1. Dayton Public Schools/Wright State University (CEHS) agrees to:

   - Provide initial in-service to volunteering faculty and administrators
   - Provide clinical faculty status for collaborating faculty and administrators
   - Provide cohorts annually to be placed at Dayton Schools (All interns within the cohort group will apply through Dayton Public Schools for Substitute Teaching Certification)
   - Participate in Partner Site Advisory Council
   - Provide a DPS/WSU Partnership Coordinator
   - Provide a DPS/WSU College liaison educator at each site.

2. Dayton Public Schools agrees to:

   - House and provide classroom space for the Elementary and Secondary cohort groups
   - Assist in getting cohort interns certified for substituting over the summer prior to internships
   - Participate in the Partnership Advisory Council
   - Provide Building Principal as site liaison.

3. The Partnership agrees to:

   - Provide a steering committee composed of Dean, Associate Dean, Chairman of Teacher Education, Director of Professional Education Program (PEP), and PEP Coordinator (WSU-CEHS), Deputy Superintendent, Lead Principal, Site Principals from Dayton Public Schools:
   - Oversee policies and establish process for operation:
   - Define a process that will determine if the goals or outcomes are being met.
   - Plan collaboratively and co-present, pre-service and in-service classes and activities.
   - Plan for communication and conflict resolution.
   - Assign interns to a clinical faculty team.

PARTNERSHIP ADVISORY COUNCIL PRINCIPLES

1. The purpose of the Partnership Advisory Council structure is to empower - not to control.

   The relationship is based on Professionalism, Trust, and Commitment

2. The site should be able to make decisions that do not violate either organization, board, or institution policies, or are in conflict with the directions set by the steering committee.

3. Decisions made at the site level should be shared with parent groups and the Dean of the College of Education and Human Services.

4. Each Partner School will develop an Advisory Council that best suits their structure.

   Continuous documentation should be kept regarding decisions, modifications,etc.

5. The Advisory Council should foster an overreaching sense of professional identity, inclusion, influence, and pride.

   It will not be a static phenomenon; rather it will be a dynamic force that needs strategies to nurture it. It will require on-going attentions, support and priority.

6. The Partnership recognizes that there are some issues that are the sole domain of the Board of Education, the University and the College.

THE PARTNERSHIP NETWORK

The Partnership Network of participating districts will not be a decision-making body but will act in an advisory to the entire Partnership.

The Network will support, communicate, and advise on issues brought before it by the Advisory Councils and other groups.

Suggested Benefits for Cooperating Teachers (CTs) and School Staff of a Professional Development School in the Professional Education Program

1. CTs receive financial remuneration (i.e. $100 per intern per Wright State University quarter), the school district receives tuition credits to be used first by CTs, secondly by staff members of Professional Education Program schools, and thirdly by other teachers in the district.
2. CTs will receive 20 hours for staff development credits and 4 activity credits as outlined in the Dayton Public Schools/DEA Master Contract.
3. CTs schedules are designed so that they have flexibility in teaching periods.
4. CTs will have clinical staff status at Wright State University.
5. Celebration/Recognition at the end of the internship experience.
6. Possible selection of teacher(s) to attend local, state, and national conference at no cost to the teacher.
7. University provides resource persons at Dayton Public Schools request at no cost to the school to assist the school in their planning, implementation, analyzing, etc. in the achievement of school's goals.
8. CTs will be provided Pathwise/Praxis Assessment orientation.
9. Wright State University faculty will collaborate to write grants to help meet various school identified needs.
10. CTs will be provided parking passes when using the University's facilities.

Benefits for Schools with Professional Education Program Interns

The University and the Professional Development Schools faculties collaborate in the interest of students' learning by:

1. Having more adults to assist in the teaching of students.
2. Jointly planning with the University on research projects to meet identified needs of students.
3. Assisting the Professional Development Schools in providing resources for staff development.
4. Granting Cooperating Teacher clinical faculty status at the University.
5. Having CTs and other teaching staff of the Professional Development Schools being eligible for Pathwise/Praxis Assessment orientation.
6. Having a University Site representative spending two or more days monthly the Professional Development school.
7. Being involved in nationally recognized network coalitions (i.e. NCATE, NNER, AND THE Holmers Partnership).
8. Writing grants beneficial to the Professional Development School and the University.

DAYTON PUBLIC SCHOOLS/ WRIGHT STATE UNIVERSITY
PARTNERSHIP AGREEMENT
July 1997—June 2000

Wright State University:

Kim Goldgaber — President, Wright State University — 4/20/98 Date

John Hunchard — Provost, Wright State University — 4/20/98 Date

Gregory R. Bernhardt — Dean, College of Education and Human Services — 4/20/98 Date

Dayton Public Schools:

Superintendent, Dayton Public Schools — April 1, 1998 Date

Deputy Superintendent, Dayton Public Schools — April 6, 1998 Date

Nancy M. Brown — President, Dayton Board of Education — April 9, 1998 Date

Treasurer, Dayton Public Schools — 2-19-98 Bd. M Date

Attachment B

TEACHER PERFORMANCE ASSESSMENTS
ASSESSMENT CRITERIA

Domain A – Organizing Content Knowledge for Student Learning	
A1:	Becoming Familiar with relevant aspects of students' background knowledge and experiences.
A2:	Articulating clear learning goals for the lesson that are appropriate for the students.
A3:	Demonstrating an understanding of the connections between the content that was learned previously, the current content, and the content that remains to be learned in the future.
A4:	Creating or selecting teaching methods, learning activities, and instructional materials or other resources that are appropriate for the students and that are aligned with the goals of the lesson.
A5:	Creating or selecting evaluation strategies that are appropriate for the students and that are aligned with the goals of the lesson.

Domain B – Creating an Environment for Student Learning	
B1:	Creating a climate that promotes fairness.
B2:	Establishing and maintaining rapport with students.
B3:	Communicating challenging learning expectations to each student.
B4:	Establishing and maintaining consistent standards of classroom behavior.
B5:	Making the physical environment as safe and conducive to learning as possible.

Domain C - Teaching for Student Learning	
C1:	Making learning goals and instructional procedures clear to students.
C2:	Making content comprehensible to students.
C3:	Encouraging students to extend their thinking.
C4:	Monitoring students' understanding of content through a variety of means, providing feedback to students to assist learning, and adjusting learning activities as the situation demands.
C5:	Using instructional time effectively

Domain D - Teacher Professionalism	
D1:	Reflecting on the extent to which the learning goals were met.
D2:	Demonstrating a sense of efficacy
D3:	Building professional relationships with colleagues to share teaching insights and to coordinate learning activities for students.
D4:	Communicating with parents or guardians about student learning.

professional Educator Program

as of May 21, 1999

PEP SUMMER 1999
99/00 COHORT CLASS SCHEDULE

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
AM	ED 602 ED in a Pluralistic Society 8:30 - 11:00 Cole C Term	ED 622 Instructional Design & Technology 8:00-12:00 4 cr.hr. C Term	ED 602 ED in a Pluralistic Society 8:30 - 11:30 3 cr. hr. Cole C Term	ED 622 Instructional Design & Technology 8:00 - 12:00 4 cr. hr. C Term	ED 622 Instructional Design & Technology 8:00 - 12:00 4 cr. hr. C Term
PM	ED 621 Human Development 1:00 - 3:30 3 cr. hr. C Term	ED 602 ED in a Pluralistic Society 1 - 3:30 Helms C Term	ED 621 Human Development 1:00 - 3:30 3 cr. hr. C Term	ED 602 ED in a Pluralistic Society 1 - 3:30 Helms C Term	

PEP FALL 1999
CLASS SCHEDULE: Elementary

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
AM	EDS 624 (4) Spec. Ed. 9:00 - 12:20 Staff @ 5PTS		ED 614 (1) Field	ED 614 (1) Field	ED 614 (1) Field
PM	ED 606 (4) L.A. I 12:30 - 3:50 Hansell @ 5PTS	ED 608 (3) SS 12:00 - 2:30 Helms @ EJB/WSU			
AFTER SCHOOL	CNL 662 (4) Seminar 4:00 - 7:00 Henderson @ WSU	ED 600 Management 4:00 – 6:30 J.Jahoda/E..Gibbons at Five Points			

PEP FALL 1999
CLASS SCHEDULE: Secondary

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
AM	ED 631 (3) Literacy 9:00-11:30 O'Connor @ Baker	ED 664 (3) Evaluation 9:00 - 11:30 Cole @ Baker	ED 614 (3) Field	ED 614 (3) Field	ED 614 (3) Field
PM	Academic Prep Time				
AFTER SCHOOL	CNL 662 (4) Seminar 4:00 - 7:00 Henderson @ WSU	ED 600 (3) Mngmt 4:00-6:30 J. Jahoda / E. Gibbons At Baker			

* Seminars to discuss academic or applied field strategies might be arranged during this time.

PEP WINTER 2000
CLASS SCHEDULE: Elementary
Revised November 5, 1999

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
AM	**ED 607 (4) L.A.II @ Five Pts. 10:00 – 12:00 O'Connor**	**ED 610 (6) Science/Math 9:30 – 12:00 @ Five Pts. Tomlin**	ED 616 (1) Field	ED 616 (1) Field	ED 616 (1) Field
PM	**ED 610 (6) Science/Math @ Five Pts. 12:30 – 3 Tomlin**	ED 607 (4) L.A.II @ Five Pts. 12:30 – 2:30 **O'Connor**			
AFTER SCHOOL		**EDL 670 (3) Seminar @ 168 Rike WSU 4:00 – 6:30 Ryan**		**ED 770 Art & Music @ Five Points 4:20- 6:50 Art: Jennifer Cross Music: Jennifer Gillespie**	

PEP WINTER 2000
CLASS SCHEDULE: Secondary

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
AM	*Academic Prep Time		ED 616 (3) Field	ED 616 (3) Field	ED 616 (3) Field
PM	EDS 624 (4) Spc. Ed. 12:30 – 3:00 @ 168 Rike WSU Renick				
AFTER SCHOOL	ED 635 Sec. Issues (3) 4:00 - 7:00 Clemments/Gibbons @ Baker	**EDL 670 (3) Seminar @ 168 Rike WSU 4:00 – 6:30 Ryan** **ED 638(Math Methods) 4:20-6:50 @ 342 Millett WSU**	Sec. Methods Crs.(3) 4:20 - 6:50 *Math People OnlyRegister for: EDL774 in place of EDL 670* 4:20-6:50 Webber @ 347 Millett WSU		

* Seminars to discuss academic or applied field strategies might be arranged during this time.

"Subject Matter" for 5-8 *Life Science* Content Standards

- Structure and Function
- Reproduction and Heredity
- Regulation and Behavior
- Populations and Ecosystems
- Diversity and Adaptations

Fundamental Concepts and Principles for 5-8 Life Science Standards

The Structure and Function in Living Systems
- Living systems demonstrate complementarily between structure and function.
- Biological levels of organization i.e. cells, tissues, organs, etc.
- Cells are the fundamental units of life.
- Unicellularity and multicellularity.
- Cellular functions sustain life e.g. growth, division, nutrition, energy production, and making needed materials.
- Specialization of cells and their resultant functions leads to tissues, organs, etc.
- Human body systems and their interactions.
- Disease and its intrinsic and extrinsic causes.

Reproductive and Heredity
- Reproduction as a characteristic of life and continuation of species.
- A sexual vs. sexual reproduction.
- Females produce eggs, males produce sperm, and their union produces a genetically unique individual.
- Plants and flowers – the organs of sexual reproduction.
- Heredity and the passage of instructions from generation to generation.
- Genes and chromosomes in cells.
- Genes and their control over traits.
- Inherited traits vs. acquired traits.

Regulation and Behavior
- Maintenance of internal stability in organisms.
- Regulatory control mechanisms.
- Behavior as a response to internal and environmental stimuli.
- Behavior results from heredity and experience.
- Behavior evolves through environmental adaptation.

Populations and Ecosystems
- Definition of a population and an ecosystem.
- Producers, consumers, decomposers, and food webs.
- Sunlight as the energy source.
- Plants and photosynthesis.
- Numbers of organisms, resources, and limiting factors.

Diversity and Adaptations of Organisms

- Unity of living things, e.g. internal structural similarities, chemical processes, and evidence of common ancestry.
- Biological evolution, adaptation, and natural selection.
- Reproductive fitness and survival.
- Extinction and the fossil record.

Some Common Misconceptions

- Plants do not reproduce sexually via sperm and eggs.
- Observable traits are directly inherited from parents.
- Concepts of community and competition are limited to everyday definitions and understandings, not ecological.
- When environments change, individual organisms deliberately adapt.

Points to Remember

Students should progress from studying individual organisms to ecosystems to cellular dimensions. Students should now be introduced to the concept of a cell. Their observations and investigations should become more quantitative and involve computers and conceptual and mathematical models. Development of fine motor skills allows for the introduction of the light microscope to aid in their study of cells and microorganisms. Their stage in their own physical development lends itself well to the study of human biology and reproduction.

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