THE DEVELOPMENT OF A PRE-SERVICE TEACHER EVALUATION DATABASE

by

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B.A., Wichita State University, 1971
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AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Curriculum and Instruction
College of Education

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ABSTRACT

The purpose of this research and development study was to design and develop an affordable, computer-based, pre-service teacher assessment and reporting system to allow teacher education institutions and supervising teachers to efficiently enter evaluation criteria, record pre-service teacher evaluations, and generate evaluation reports. The system design supports pre-service teacher evaluators and the data collection, evaluation, and reporting needs of pre-service teacher training institutions.

The researcher used a literature review and a needs assessment to determine the need for the system and to define the system prototype's functional requirements. The researcher used a modified ten-phase development approach (Borg & Gall, 1989) to develop the system.

Three separate evaluator groups reviewed the system during development. Teacher licensing officers from private colleges and the Regents Universities in Kansas participated in the needs assessment phase of the study. Past and present National Council for Accreditation of Teacher Education (NCATE) evaluation team members served as expert evaluators who provided feedback regarding the validity and functionality of the system prototype. Supervising professors from Regents University colleges of education and from private universities represented the target users and provided feedback regarding the validity, user friendliness, and usefulness of the system. Prior to sending the system prototype to evaluator groups, the prototype was reviewed by a select group of educators and information technology professionals to make sure the prototype was functioning properly and that it could be easily installed by evaluators.

The overall results of the needs assessment indicated that the computer-based, pre-service teacher evaluation system that was developed would add value to and improve the evaluation process for teacher training institutions that use spreadsheet and paper-based systems. Survey respondents determined that the system prototype could meet important data collection, analysis, and reporting needs and could increase reporting and data retrieval efficiency for teacher evaluators and teacher training institutions. Target user evaluations found the system to be useable, functionally adequate, and a useful assessment tool.

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CHAPTER 1- INTRODUCTION

Of all of the stakeholders in the American educational process, the classroom teacher is probably the most scrutinized, the most criticized, and the most lauded. A Google search conducted by the researcher using the keywords "teacher accountability" produced 1,260,000 hits. The articles range from scholarly to anecdotal and cover topics from "what is wrong and how to fix it" to "what works" (Google, 2010). Stakeholders such as parents, school administrators, accrediting organizations, legislators, school boards, and society in general hold the classroom teacher responsible for providing successful learning environments and experiences for every student. Parents are crucial to students' academic success, but classroom teachers have more direct contact with students during the formal learning process. "No other person in the school organization has as much potential for influencing students – for better or worse – than the teacher. It is from the teacher-student relationship that the student will experience growth and fulfillment or be stifled and damaged" (Gordon, 2003, p. 1). As Linda Darling-Hammond once said, "What teachers know and can do makes the most difference in what children learn" (Darling-Hammond, 2004, p. 1). According to Tony Lybarger, "…the most important person in the classroom is the teacher" (Lybarger, 2005, p. 13). Because teachers play such a crucial role in successful student learning, it is important to properly educate them and develop their teaching skills before they become licensed as in-service teachers. Two key components of the pre-service teacher education program that help accomplish this are the field experience and student teaching portions of their program of study. During this time, pre-service teachers apply what they have learned in actual classroom settings

and receive feedback through formative evaluations conducted by supervising professors and teacher mentors. Their supervising professors and mentors observe and evaluate their performance to determine if they have demonstrated their knowledge and skills in measurable ways (National Council for Accreditation of Teacher Education, 2008, p. 7). Before pre-service teachers are licensed to teach, several formative and summative evaluations are conducted to determine if they should be allowed to continue with their program of study and if they should be licensed. These formative and summative evaluations are designed to provide reasonable assurance that pre-service teachers are adequately prepared and ready to teach.

The principal question this research and development study was designed to answer is:

Can an affordable database tool be developed that will improve the efficiency of the pre-service teacher evaluation process and meet the data collection and reporting needs of supervising professors and teacher mentors at NCATE (National Council for Accreditation of Teacher Education) affiliated teacher training institutions?

To help answer the principal question of this research and development study, the following questions need to be answered:

- Do NCATE affiliated teacher education institutions need a computer-based system for recording, analyzing, and reporting pre-service teacher evaluation data during the field experience and student teaching portions of their program of study?
- On what set(s) of standards and/or “best practices” should a pre-service teacher evaluation system be built?

- What demographic and evaluation data need to be collected?
- What functionality should the system provide for its users?
- What usability and affordability criteria should the evaluation system meet?
- Do teacher training institutions need feature-rich, commercial evaluation recording and reporting systems or will internally developed systems meet their needs?

Purpose of the Study

This research and development study was designed to determine if an efficient, affordable pre-service teacher evaluation recording and reporting system can be developed that will meet the needs of supervising professors and teacher mentors at NCATE (National Council for Accreditation of Teacher Education) affiliated teacher training institutions. The purpose of this study was to answer the following questions:

- Do NCATE affiliated teacher education institutions need a computer-based system for recording, analyzing, and reporting pre-service teacher evaluation data during the field experience and student teaching portions of their program of study?
- On what set(s) of standards and/or “best practices” should a pre-service teacher evaluation system be built?
- What demographic and evaluation data need to be collected and stored?
- What functionality should the system provide for its users?
- What usability and affordability criteria should the evaluation system meet?
- Do teacher training institutions need feature-rich, commercial evaluation recording and reporting systems or will internally developed systems meet their needs?

Significance of the Study

This research and development study made a contribution toward improving the pre-service teacher evaluation process because:

1. Common assessment criteria and data collection requirements were determined by surveying supervising professors and teacher mentors at NCATE affiliated teacher education institutions.
2. Surveying three separate populations actively involved in the teacher education, assessment, and licensing processes helped insure that the functional requirements of the system were determined in a manner that helped make the system prototype easy to use, affordable, and effective. The three populations involved were teacher licensing officers, past and present NCATE evaluation team members, and supervising professors and teacher mentors.
3. Affordability was achieved by using “off the shelf” software to develop the system. “Off the shelf” software is software that can be purchased commercially at a retail outlet and used by non-programmers. Microsoft Access 2007 was the specific “off the shelf” software that was used.
4. Collecting evaluation data on-site helped make the process of evaluating pre-service teachers and providing timely feedback less error prone and less labor intensive.
5. Using consistent evaluation rubrics provided quantifiable measures of evaluation criteria.
6. The system provided the capability to compare one pre-service teacher’s evaluations over time or to other individual or group evaluations.

Research Question

The principal question this research and development study was designed to answer is:

Can an affordable database tool be developed that will improve the efficiency of the pre-service teacher evaluation process and meet the data collection and reporting needs of supervising professors and teacher mentors at an NCATE affiliated teacher training institutions?

Methodology

This study used a modified version of the research and development steps outlined by Borg and Gall (Borg & Gall, 1989). These steps answered the study's research questions by using:

1. a needs assessment that determined a need for a pre-service teacher evaluation recording and reporting system and determined the general data collection needs and functional requirements of the system.
2. data collection to determine the functional requirements of the system.
3. a prototype of the proposed system that was refined until it became a complete system that was ready to implement.
4. supervising professors and teacher mentors to review the prototype for functionality, usability, completeness, and affordability.

The following specific steps were followed during this research and development study:

1. Conduct a needs assessment
2. Determine functional requirements and data collection needs

3. Develop prototype
4. Conduct first field test
5. Refine product
6. Conduct second field test
7. Refine product
8. Disseminate product

Scope Limitations

The scope of this research and development project was limited to designing and developing a database system to collect evaluation data and produce evaluation reports. Developing new teacher evaluation criteria and rubrics was beyond the scope of this study. The evaluation criteria and rubrics used were solely for demonstrating the system's functionality and capabilities. The evaluation criteria and rubrics used were a composite of the samples provided by individuals interviewed to determine data collection needs and system functionality and evaluation rubrics discovered during the literature review portion of this study (Danielson, 1996 & Danielson, 2008). Because a non-probability, purposive sample of persons directly connected with teacher training institutions and the teacher evaluation process was used, percentages for responses to survey questions do not imply a large number of respondents.

CHAPTER 2 - REVIEW OF LITERATURE

Introduction

The literature review examined various individuals and organizations that have influenced the teacher evaluation process over time to determine what evaluation criteria emerge as recurring areas of emphasis. These criteria were the basis for selecting evaluation rubrics used in the initial system prototype. Teacher evaluation systems currently on the market were reviewed to determine if they meet the affordability, ease-of-use, and functional needs of NCATE (National Council for Accreditation of Teacher Education) affiliated teacher training institutions.

Stakeholders and Their Influence

Pre-service teachers as the teachers of tomorrow need to develop skills, knowledge, and professional characteristics that meet the rigorous standards set for in-service teachers. To make sure that this occurs, NCATE accredited teacher training institutions and the supervising professors and teacher mentors associated with teacher training programs assess the pre-service teachers' skills, knowledge, and teaching ability in a meaningful and measurable manner (National Council for Accreditation of Teacher Education, 2008, pp. 6-7). Since what is required of pre-service teachers is influenced by what various stakeholders consider important for in-service teachers, it was beneficial to discuss who the stakeholders are and how they interact to influence accountability standards and practices for in-service teachers.

Teachers have always been evaluated formally and informally, directly and indirectly by the various stakeholders in the educational process (administrators, policy

makers, legislators, students, parents, taxpayers, employers, and professional colleagues). Since the educational reform movement began, there has been an increased emphasis on teacher accountability and continuous professional development (National Center for Education Statistics, 1999). This accountability begins during pre-service teacher training and continues throughout the teacher's career. Many of the accountability measures established for in-service teachers have influenced the measures and standards developed for pre-service teachers.

Traditionally, principals play a central role in in-service teacher evaluations because they are the primary quality agents for the rest of the stakeholders in the educational process. Many state laws and collective bargaining agreements specify that in-service teachers' supervisors (generally school principals) evaluate their performance (Boyd, 1989, para. 6). Principals are responsible for hiring, firing, and managing in-service teachers and for developing and managing effective educational programs in their respective schools. Principals are responsible for gathering, organizing, interpreting, presenting, using, and storing data and information that reflect the quality and effectiveness of the educational opportunities their schools provide. Principals interact with policy making groups e.g. school boards and legislators through meetings, reports, and formal and informal correspondence.

Accrediting organizations, school boards, and legislators are responsible for setting content and performance standards and measurement of teachers; for establishing reporting criteria, frequency, and format; and for compliance monitoring. According to Article 6, section 2 of the Kansas State Constitution, the Kansas State Board of Education (KSBE) is charged with the general supervision of public education

and other educational interests in the state (Kansas Constitution, 2008, para. 8). The legislature provides for a state board of regents and for its control and supervision of public institutions of higher education (Kansas Constitution, 2008, para. 1). School administrators interact with students, parents, taxpayers, and employers through one-on-one or group meetings and forums. All of these stakeholders are concerned with the value, content, quality, and relevance of the education provided by their local schools and with the quality of student learning so each stakeholder group plays an active role in establishing evaluation standards. School administrators interact with colleagues through professional organizations at the local, regional, and national level. These organizations help determine best practices and establish evaluation standards. All stakeholders directly or indirectly influence the standards for in-service teachers.

A heightened interest in creating quality educational opportunities and the need to validate the level of quality that exists in public schools today has prompted policy-makers, educators, and parents to seek new ways to hold teachers accountable for their teaching (Mc Cay, 2000, para. 2). Since these standards have to eventually be met by in-service teachers, they directly influence the evaluation criteria for pre-service teachers and the institutions that train them. The in-service evaluation process pushes teacher preparation units to insure that anyone who graduates from their institution can be certified to teach.

Individuals and Their Influence

Over time, teacher evaluation has changed from an informal, subjective process to a more objective and formal process. There have been several shifts in approach and areas of emphasis since formal, objective teacher evaluation began.

In-service teacher evaluation in the 1970's was based on the Madeline Hunter model, which relied on student achievement as the principle measure of teacher effectiveness. The 1970's evaluation model encouraged emphasis on teacher-centered, structured classrooms, which were characterized by a focus on learning styles, stated objectives, instructional input, modeling, and checking for understanding using guided practice and independent practice (Hunter, 1967, pp. 107-113).

In the 1980's, in-service teacher effectiveness was evaluated using expectancy studies, discipline models, Hunter derivatives, effective schools research, cooperative learning, and brain research (Danielson & Mc Greal, 2000, para. 2). Hunter derivatives were still important to the evaluation process but discipline models looked at how discipline-specific teaching approaches might improve student learning. Ms. Hunter's approach was supported by Joyce and Weil in their Models of Teaching which further explained direct instruction and included a similar model for developing lesson plans (Joyce & Weil, 1986, pp. 1-10). Center for Effective School Practices (CESP) research identified effective practices for learning and explored how teaching techniques and tools might help replicate teaching success through the application of effective teaching practices (Center for Effective School Practices, 2010, para. 1-10). Cooperative learning used peer groups to accomplish learning tasks. Brain research studied how the brain acquires, stores, processes, and retrieves information (Danielson & Mc Greal, 2000, para. 3). Each of these new perspectives expanded the potential areas of focus that might be included in teacher effectiveness evaluation criteria.

In the 1990's, in-service teacher effectiveness was evaluated in relation to content knowledge, content pedagogy, alternative assessment techniques, multiple

intelligence, collaborative learning, cognitive learning theory, constructivist classrooms, authentic pedagogy, engaged teaching and learning, and teaching for understanding (Danielson and Mc Greal, 2000, para. 4). Teacher effectiveness was measured in terms of how well teachers helped students construct their own knowledge as individuals and in groups. Lesh developed alternative assessment techniques to detect learning traditional assessment strategies did not detect (Hamilton, Kaput, & Lesh, 2007, pp.15-20). Alternative assessment techniques were developed based on the varying learning styles of students and the content differences between academic disciplines. Shulman identified a dichotomy between subject knowledge and pedagogy and introduced PCK (Pedagogical Content Knowledge) to bridge the gap. Using PCK as a basis to evaluate teacher effectiveness, teachers would be evaluated on how effectively they selected teaching approaches that fit the content and how well they arranged the content for better teaching (Shulman, 1986, pp. 4-14). Engaged teaching and learning focused on using teaching techniques that included inquiry-based, cooperative, or student-centered learning (Danielson & Mc Greal, 2000, para. 5). Teaching for understanding focused on teachers and students focusing on understanding what was learned, not just learning for learning's sake (Danielson & Mc Greal, 2000, para. 6).

In the 2000's, the focus is on authentic pedagogy, engaged teaching and learning, and teaching for understanding (Danielson & Mc Greal, 2000, para. 7). Authentic pedagogy uses problem-posing education that recognizes that knowledge is not just a matter of transmission from teacher to student. It is the result of dialogue between the two (Danielson & Mc Greal, 2000, para. 7). As mentioned earlier, the

principle goal of engaged teaching and learning and teaching for understanding is to help students and teachers learn how to apply knowledge, not simply acquire it.

These shifts in the focus of in-service teacher evaluations over the past several decades show how the process was transformed over time. These changes are cumulative in the sense that each new approach benefited from what was learned about effective teaching and in-service teacher evaluation in the past. Each new approach retained some elements of past practices but shifted the primary focus of evaluations to emerging areas of emphasis reflecting current theories of effective teaching. Each new decade's focus required new evaluation techniques that expanded or replaced those that were used in the previous decade. In each of these decades, the principle challenges facing those evaluating and validating the effectiveness of classroom teaching and learning in the American educational system have been:

1. to determine what constitutes effective teaching and learning;
2. to clearly identify quantifiable criteria to determine if effective teaching and learning are occurring;
3. to effectively and efficiently collect and evaluate data;
4. to apply what has been learned to the process of promoting increased quality and effectiveness.

Pre-service teacher training institutions and pre-service teacher evaluators face these same four challenges today. During the field experiences and student teaching portions of their program of study, each pre-service teacher must be evaluated to determine if effective teaching and learning are taking place. To do this, effective teaching and learning measurement criteria must be determined. These criteria must

be quantified and recorded efficiently and effectively. The information obtained from this data after it has been sorted, filtered, and organized must be useful to evaluators and pre-service teachers and help to improve the quality and effectiveness of teaching and learning.

Effective teaching techniques and methods, evidence of student learning, valid measurements, efficient data collection, and improved teacher quality are all common concerns related to both in-service and pre-service teacher evaluations.

Evaluation Models and Their Influence

Direct Instruction Model

The "Seven-Step Lesson Plan" teacher evaluation approach, often referred to as the "Madeline Hunter Model" or direct instruction, is based on the principles of "direct instruction" formulated by Hunter. The "Seven-Step Lesson Plan" was compiled by others and was not created by Madeline Hunter. The plan is only a part of Madeline Hunter's method which suggested elements that might be considered in planning for effective instruction (Allen, 1998, para. 1). Hunter suggested the following direct instruction elements as parts of teacher prepared lesson plans:

1. **Objectives** – Before a lesson is prepared, the teacher should have a clear idea of teaching objectives. What specifically should the student be able to do, understand, and care about because of the teaching (Hunter, 1982, pp. 1-7)?
2. **Standards** – The teacher should know what performance standards are expected and when to hold students accountable for meeting the standards. Students should be informed about the performance standards in terms of procedures to be followed, behavioral expectations, what they are expected to do, what skills or knowledge are

to be demonstrated, and how they will demonstrate the skills and knowledge (Hunter, 1982, pp. 19-23).

3. **Anticipatory Set** – Actions or statements, sometimes called "hooks", relate the experience of the students to the lesson objectives. These are intended to focus the students' attention on the lesson, create an organizing framework, and extend understanding and the application of abstract ideas with examples or analogies (Hunter, 1982, pp.25-30). According to Flynn, Mesibov, Vermette, and Smith, the "set" is "… a quick, teacher-led, brief activity that is supposed to get the students' minds off their own lives and get them started on the new material" (Flynn, Mesibov, Vermette, & Smith, 2004, para. 3).
4. **Teaching/Presentation** – Includes "input" where the teacher provides information through lecture, film, tape, video, pictures, etc. to help students gain the knowledge or skill. It also includes modeling where the teacher shows students examples of what is expected as an "end product" of their work. Critical aspects are explained using labeling, categorizing, comparing, etc. so that students will be ready for the application level of the learning process (Hunter, 1982, pp. 37-55).
5. **Checking for Understanding** - is used to determine if the students understand. Questions to test understanding should go beyond mere recall and probe for higher levels of understanding (Hunter, 1982, pp.59-62). A suggested hierarchical/cumulative questioning pattern follows Blooms' Taxonomy of Educational Objectives and progresses from the lowest to the highest level of the cognitive domain e.g. knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom, 1956, pp. 1-2). When checking for understanding the

instructor should be constantly monitoring the lesson to determine the degree of instructional effectiveness. Once that is determined, adjustments may need to be made in the presentation to reach the desired learner outcome (Checking for understanding, 2005, para.3).

6. **Guided Practice** - Each student is given an opportunity to demonstrate a grasp of the new learning by working through an activity or exercise under the teacher's direct supervision (Hunter, 1982, pp. 69-75).
7. **Closure** – is actions or statements by the teacher that are designed to bring a lesson presentation to an appropriate conclusion (Hunter, 1982, pp.85-113). Closure is used to:
   - cue students to the fact that they have arrived at an important point in the lesson or the end of a lesson
   - help organize student learning
   - help form a coherent picture, to consolidate and eliminate confusion and frustration
   - reinforce the major points to be learned to help establish thought relationships that provide a number of possible cues (hooks) for retrieval of the information, knowledge, or skills learned. This should be provided on a recurring basis over time so that learning is not forgotten. It should include enough different contexts so that the student can apply the skill or concept to any relevant situation and not just the context in which it was originally learned. Failure to do this is responsible for most student failure to be able to apply something learned (Hunter, 1982, pp. 85-113).

As stated earlier, Hunter did not create the “Seven-Step Lesson Plan” template that has been used as a model for developing lesson plans in some teacher education courses. Hunter suggested useful steps and a structure for planning effective instruction and developing lesson plans even non-behavioral ones (Wolfe, 1987, pp. 70-71). Pennsylvania State University (Lesson Planning, 2009), Humboldt State University (Some basic lesson presentation elements, 2009), and the University of Idaho (Hunter model, 2009) are just a few of the universities that include samples of the seven-step lesson plan template in course syllabi for teacher education courses. Using the seven-step lesson plan template like a checklist to measure subject related and pedagogical competence and effective lesson planning, could be effective but it does not measure all of the factors related to actual teacher effectiveness.

Behavioral Model

Another influential model for assessing teachers centered on Teacher Effectiveness Training (TET) which was a discipline model developed by Thomas Gordon. This model was driven by the idea that behavior is acceptable so long as it does not interfere with another person's needs. “Everyone owns their problem, so they must own their solution” (Teacher Effectiveness Training, 2003, p. 1). Much of Gordon’s (Gordon, 1978, para. 1-5) teacher training centered on his credo:

A Credo for My Relationships with Others

You and I are in a relationship which I value and want to keep. We are also two separate persons with our own individual values and needs.

So that we will better know and understand, what each of us values and needs, let us always be open and honest in our communication.

When you are experiencing a problem in your life, I will try to listen with genuine acceptance and understanding in order to help you find your own solutions rather than imposing mine. And I want you to be a listener for me when I need to find solutions to my problems.

At those times when your behavior interferes with what I must do to get my own needs met, I will tell you openly and honestly how your behavior affects me, trusting that you respect my needs and feelings enough to try to change the behavior that is unacceptable to me. Also, whenever some behavior of mine is unacceptable to you, I hope you will tell me openly and honestly so I can try to change my behavior.

And when we experience conflicts in our relationship, let us agree to resolve each conflict without either of us resorting to the use of power to win at the expense of the other's losing. I respect your needs, but I also must respect my own. So let us always strive to search for a solution that will be acceptable to both of us. Your needs will be met, and so will mine--neither will lose, both will win.

> In this way, you can continue to develop as a person through satisfying your needs, and so can I. Thus, ours can be a healthy relationship in which both of us can strive to become what we are capable of being. And we can continue to relate to each other with mutual respect, love and peace (Gordon, 1978).

When teachers are trained and evaluated using a discipline model the focus is on their ability to effectively interact with students in a manner that fosters learning, maintains self and mutual respect, encourages students to take responsibility for their learning, and instills confidence (Gordon, 1978, pp. 3-6). Evaluating pre-service teachers using a behavioral or Teacher Effectiveness Training model would involve measuring the teacher's ability to effectively model the desired behavior for students.

Guided Inquiry

The Learning Cycle Model has several variations e.g. the Five E's Learning Cycle (Lorsbach, 2006, para. 1-6) and the Kolb Learning Cycle (Kolb, 1984, pp. 1-5). The basic cycle includes four or five phases and begins by immersing students in performing a task or creating interest or curiosity in a topic. The Kolb Learning Cycle (Kolb, 1984, pp. 1-5) has four phases: Experiencing, Reflection, Conceptualization, and Planning. During the Experiencing phase, the individual or group is immersed in performing a task with intention. During the Reflection phase, the individual or group "steps back" and reflects on what was done with the goal of communicating differences. During the Conceptualization phase, the individual or group interprets the events that were noticed and develops an understanding of their relationships. During Planning which is the last phase, the individual or group translates the "new understanding" into predictions about what is likely to happen next or what actions should be taken to refine

the way the task is handled. The Learning Cycle can be used during initial framing of a problem to determine if experience will indicate an approach to solving the problem or during natural breaks in the task to improve how the problem is being handled. Implementing the Learning Cycle during task performance is generally indicated when task performance is poor or when a crisis occurs that disrupts task performance (Kolb, 1984, pp. 1-6). The Learning Cycle (Lorsbach, 2006, para. 1-6) generally followed in science instruction includes five phases: Engage, Explore, Explain, Extend, and Evaluate. During the Engage phase, the goal is to create student interest and pique curiosity about the topic of study. This is also the phase to identify students' misconceptions in understanding and to determine what they already know by asking questions and eliciting student responses. During the Explore phase, students are allowed to work together without direct instruction from the teacher. The goal is to allow them to test predictions and hypotheses or form new ones, try alternatives and discuss them with other students, and record observations and ideas without making judgments. During the explain phase, students use observations and recordings to explain concepts in their own words while their teacher and other students listen critically. During the Extend phase, students apply concepts and skills that were developed in previous phases to new but similar situations. In the Evaluate phase, the teacher observes how students develop and apply knowledge and skills. Evaluation occurs throughout the entire learning cycle. Students also assess their own learning. Guided Inquiry is central to science learning. According to Coburn (2000, para. 4), inquiry is "the creation of a classroom where students are engaged in essentially open-ended, student-centered, hands-on activities." Evaluating pre-service teachers using this model would involve

evaluating the teacher's ability to actively engage students in the learning process and their ability to help students develop learning strategies and problem solving skills.

Components of Professional Practice

Charlotte Danielson authored two books related to enhancing professional practice in the teaching profession (Danielson, 1996, 2008). Danielson identified four separate domains: planning and preparation, the classroom environment, instruction, and professional responsibilities. Each domain was divided into components. Planning and Preparation domain components are: demonstrating knowledge of content and pedagogy; demonstrating knowledge of students; selecting instructional goals; demonstrating knowledge of resources; designing coherent instruction; and assessing student learning. Classroom Environment domain components are: creating an environment of respect and rapport; establishing a culture of learning; managing student behavior; and organizing physical space. Instruction domain components are: communicating clearly and accurately; using questioning and discussion techniques; engaging students in learning; providing feedback to students; and demonstrating flexibility and responsiveness. Professional Responsibilities domain components are: reflecting on teaching; maintaining accurate records; communicating with families; contributing to school and district; growing and developing professionally; and showing professionalism. Danielson's books contained evaluation rubrics for each component within the four domains. Each rubric divided a component into subcomponents and provided descriptive criteria to determine which of four performance levels was met: unsatisfactory, basic, proficient, or distinguished. Danielson intended to develop a framework that defined what teachers should know and be able to do as professionals.

The framework's design identified aspects of a teacher's responsibilities that have been documented through empirical studies and theoretical research (Danielson, 1996). A framework for professional practice offers the profession a means of communicating about excellence and meets the needs of novices and veterans (Danielson, 1996). Danielson discussed the two principal sources of evidences: direct observation and the examination of artifacts (Danielson, 2008). Both books provide a number of charts, forms, rubrics, tables, and narratives that are useful in preparing for and evaluating teaching excellence. Danielson's resources are comprehensive and should cover many if not all of NCATE's evaluation standards for pre-service teachers and as a whole address teacher education institution program requirements related to pre-service teacher evaluation.

Organizations and Legislation and Their Influence

Since the educational reform movement began, several organizations have influenced or contributed to improving and standardizing teacher evaluation processes. Among these are: NCATE, KSDE, Praxis, No Child Left Behind, the Interstate New Teacher Assessment Support Consortium (INTASC), and the National Board for Professional Teaching Standards (NBPTS). Some of these organizations evaluate teacher training institutions while others contribute to establishing best practices and evaluation criteria. By establishing institutional evaluation criteria, these organizations influence in-service and pre-service teacher assessment standards because a teaching quality component is part of the institutional evaluation process or the institutional evaluation measures teacher effectiveness.

Major Policy and Standards Organizations' Evaluation Criteria

Several organizations have influenced pre-service teacher evaluation processes and criteria. Each is discussed in the following paragraphs and their major evaluation criteria and characteristics are identified to help identify common criteria that can be used to determine what current best practices seem to be.

Current Evaluation Criteria – NCATE

NCATE was founded in 1954. Five groups were instrumental in the creation of NCATE: the American Association of Colleges for Teacher Education (AACTE), the National Association of State Directors of Teacher Education and Certification (NASDTEC), the National Education Association (NEA), the Council of Chief State School Officers (CCSSO), and the National School Boards Association (NSBA). These groups represented the field at large at that time. They recognized the need for a strong, independent, quality assurance mechanism composed of all key stakeholders in education. NCATE replaced AACTE as the agency responsible for accreditation in teacher education (National Council for Accreditation of Teacher Education, 2009, p. 1).

"The National Council for Accreditation of Teacher Education (NCATE) is recognized by the U.S. Department of Education as the accrediting body for colleges and universities that prepare teachers and other professional personnel for work in elementary and secondary schools" (National Council for Accreditation of Teacher Education, 2008, p. 1). The Council for Higher Education Accreditation also recognizes NCATE as the official accrediting body for teacher education institutions (National Council for Accreditation of Teacher Education, 2008, p. 5). "The NCATE accreditation process determines whether schools, colleges, and departments of education meet

demanding standards for the preparation of teachers and other professional school personnel" (National Council for Accreditation of Teacher Education, 2008, p. 1).

NCATE Standard 1 – Candidate Knowledge, Skills, and Disposition measures and determines whether teacher candidates "have in-depth knowledge of the subject matter they plan to teach and whether they can demonstrate their knowledge through inquiry, critical analysis, and synthesis of the subject" (National Council for Accreditation of Teacher Education, 2008, p. 12). Standard 1 assesses whether the teacher candidate can work with students, families, and communities in a professional manner and make adjustments to adapt their personal disposition to each group to increase effectiveness (National Council for Accreditation of Teacher Education, 2008, p. 20). Standard 1 also assesses the teacher candidate's ability to analyze student learning and make appropriate adjustments to instruction that will have a positive effect on learning for all students (National Council for Accreditation of Teacher Education, 2008, p. 20).

NCATE Standard 2 – Assessment System and Unit Evaluation requires that each teacher education unit have an assessment system that collects and analyzes data on applicant qualifications and performance that can be used to improve candidate performance (National Council for Accreditation of Teacher Education, 2008, p. 25). Standard 2 requires that each teacher education institution collect and analyze pre-service teacher qualification and performance data using fair, accurate, and consistent assessment procedures (National Council for Accreditation of Teacher Education, 2008, p. 25). This same section requires that institutions regularly use data systems to collect, compile, analyze, and publicize teacher candidate data with the goal of improving

candidate performance (National Council for Accreditation of Teacher Education, 2008, p. 26). Further requirements state that an assessment system should:

1. be developed as the result of a collaborative effort between faculty and members of the professional community
2. use professional, state, and institutional standards as reference points for candidate assessment
3. be conducted on a continuing basis, include both formative and summative assessments, and provide candidates with timely feedback (NCATE, 2008, p. 28)

This assessment data must be available to Board of Examiner teams when they perform the on-site visit (National Council for Accreditation of Teacher Education, 2008, p. 28). Since NCATE is recognized as the major accrediting body in the United States, its requirements regarding an institution's assessment system and assessment criteria for pre-service teachers should be the basis for designing a pre-service teacher assessment system.

NCATE Standard 3 – Field Experience and Clinical Practice states that "the unit and its school partners will design, implement, and evaluate field experiences and clinical practice so that teacher candidates and other school personnel develop and demonstrate the knowledge, skills, and dispositions necessary to help all students learn" (National Council for Accreditation of Teacher Education, 2008, p. 29).

NCATE Standard 4 – Diversity states that "the unit designs, implements, and evaluates curriculum and provides experiences for candidates to acquire and demonstrate the knowledge, skills, and professional dispositions necessary to help all

students learn. Assessments indicate that candidates can demonstrate and apply proficiencies related to diversity. Experiences provided for candidates include working with diverse populations, including higher education and P–12 school faculty, candidates, and students in P–12 schools" (National Council for Accreditation of Teacher Education, 2008 p. 30).

Standard 5 - Faculty Qualifications, Performance, and Development states that "Faculty are qualified and model best professional practices in scholarship, service, and teaching, including the assessment of their own effectiveness as related to candidate performance; they also collaborate with colleagues in the disciplines and schools. The unit systematically evaluates faculty performance and facilitates professional development" (National Council for Accreditation of Teacher Education, 2008, p. 30). Acceptable faculty criteria states that "Professional education faculty have earned doctorates or exceptional expertise that qualifies them for their assignments. School faculty are licensed in the fields that they teach or supervise but often do not hold a doctorate. Clinical faculty from higher education have contemporary professional experiences in school settings at the levels that they supervise" (National Council for Accreditation of Teacher Education, 2008, p. 30).

Standard 6 - Unit Governance and Resources state that "the unit has the leadership, authority, budget, personnel, facilities, and resources, including information technology resources, for the preparation of candidates to meet professional, state, and institutional standards" (National Council for Accreditation of Teacher Education, 2008, p. 31). Acceptable governance and resources criteria states that "The unit has the

leadership and authority to plan, deliver, and operate coherent programs of study. The unit effectively manages or coordinates all programs so that their candidates are prepared to meet standards. The unit's recruiting and admission practices are described clearly and consistently in publications and catalogs. Academic calendars, catalogs, publications, grading policies, and advertising are accurate and current. The unit ensures that candidates have access to student services such as advising and counseling. Faculty involved in the preparation of educators, P–12 practitioners, and other members of the professional community participate in program design, implementation, and evaluation of the unit and its programs. The unit provides a mechanism and facilitates collaboration between unit faculty and faculty in other units of the institution involved in the preparation of professional educators" (National Council for Accreditation of Teacher Education, 2008, p. 32).

The standards are designed to "ensure that new teachers attain the necessary content, pedagogical, and professional knowledge and skills to teach both independently and collaboratively" (National Council for Accreditation of Teacher Education, 2008, p. 32). Teacher training institutions must provide "clear evidence" of the competence of their teacher candidates (National Council for Accreditation of Teacher Education, 2008, p. 32). Standards 1 and 3 have a direct effect on the criteria and content of pre-service teacher evaluations conducted at teacher training institutions.

NCATE's new performance-based accreditation standards will help align NCATE with standards and licensing assessments of the National Board of Professional Standards (National Council for Accreditation of Teacher Education, 2008, p. 34). NCATE's performance-based accreditation standards align with research findings of the

National Academy of Education (NAE), the National Academy of Sciences (NAS), the American Education National Research Association (AERA), and the Institute of Child Health and Development (NICHD) regarding expectations that teacher candidates demonstrate knowledge, skills, and dispositions to provide learning opportunities supporting students' intellectual, social, and personal development (National Council for Accreditation of Teacher Education, 2008, p. 35). NCATE's institutional assessment standards directly influence the pre-service teacher accreditation process by requiring that each teacher education institution have an assessment system that effectively measures the quality, knowledge, and abilities of its teacher candidates and by outlining the functions that the system will be able to perform.

Current Evaluation Criteria – KSDE

The Kansas State Department of Education (KSDE) uses standards that include a multi-tiered approach to evaluating teacher candidates regarding their content, pedagogical, and professional knowledge, skills, dispositions, and their ability to help all students learn (Kansas State Department of Education, 2008, para. 1). KSDE standards evaluate teachers based on knowledge of their subject area and their ability to convey knowledge to students using current teaching technology and techniques appropriate to their specific academic discipline. Each academic discipline has standards to meet. In general, KSDE evaluation criteria reflect the spirit and content of NCATE requirements by assessing institutions' pre-service teacher education programs.

Current Evaluation Criteria – Praxis

Praxis is a product of Educational Testing Services (ETS) which was founded in 1947 when the American Council on Education (ACE), the Carnegie Foundation for the Advancement of Teaching (CFAT), and the College Entrance Examination Board (CEEB) contributed their testing programs, a portion of their assets, and key personnel to help start ETS (Educational Testing Services, 2004, para. 1). The American Council on Education (ACE) was founded in 1918 to provide leadership and provide a unified voice on key higher education issues for college and university presidents and chancellors (American Council on Education, 2010, para. 1). The Carnegie Foundation for the Advancement of Teaching (CFAT) was founded in 1905 by Andrew Carnegie and chartered by an act of Congress in 1906. The Foundation is an independent policy research center. CFAT's current mission is to support needed changes in American education through closer connections between teaching practice, evidence of student learning, the communication and use of this evidence, and structured opportunities to build knowledge (Carnegie Foundation for the Advancement of Teaching, 2010, para. 1). The College Entrance Examination Board (CEEB) was founded in 1900 to help high school students effectively make the transition to higher education. One of CEEB's goals was to simplify the college application process. CEEB developed a common entrance examination later known as the SAT (Scholastic Aptitude Test) to allow students to apply to multiple colleges without taking a separate entrance examination for each college. CEEB also developed resources to help students successfully find a college that would meet their academic needs and goals (College Entrance Examination Board, 2010, para. 1). ETS was founded because Harvard President James Conant

and other education leaders believed that a single organization dedicated to research and assessment could significantly contribute to the advancement of education. Henry Chauncey was its principle founder (Educational Testing Services, 2004, para. 1). The ETS mission is to help advance quality and equity in education by providing fair and valid assessments, research, and related services. ETS products measure knowledge and skills, promote learning and educational performance, and support education and professional development for all people worldwide (Educational Testing Services, 2004, para. 2).

Praxis was developed as a series of professional assessments for beginning teachers. Praxis has three major assessment categories:

1. Praxis I – Academic Skills Assessment
2. Praxis II – Subject Assessments
3. Praxis III – Classroom Performance Assessments

Praxis I is designed to be administered to teachers entering a teacher education program. Praxis II is designed to be administered to teachers entering the teaching profession for licensure purposes. Praxis III is designed to be administered as a classroom performance assessment for teachers at the beginning of their career. The Praxis Series and related assessments are designed to be used in connection with other criteria by state authorities for licensing education professionals (Praxis, 2004).

Praxis III standards for field assessments can be divided into six (6) general categories. These categories are content knowledge, pedagogical content, diversity, technology, professionalism, and emotional intelligence. Each general category is further divided into several subcategories for assessment purposes (The Praxis series,

2004, para. 2). Since Praxis tests I and II are designed to be administered to pre-service teachers and the Praxis III test is designed to be administered when a pre-service teacher first begins a career as an in-service teacher, the content of these tests has a direct influence on the content of pre-service teacher training institutions and their pre-service teacher assessment systems.

Current Evaluation Criteria – No Child Left Behind

The "No Child Left Behind (NCLB) Act" (2001) sets criteria for evaluating schools, and school districts based on student performance. Student performance is measured by administering several groups of standardized tests in the following core academic content areas: language arts, reading, English, science, mathematics, history, government, geography, economics, arts, civics, and foreign languages. These tests are all given in English if the student has attended school in the United States for three or more years (No Child Left Behind, 2001). This helps to reinforce English language proficiency as well as proficiency in the specific subject area. NCLB sets state-wide achievement standards for adequate yearly progress (AYP) that must be met. If standards are not met, a Local Educational Agency (LEA) is required to provide supplemental educational services to insure that students do not fall behind. If LEAs do not improve they can be restructured to include outsourcing their management to the private sector. Students who attend schools in an LEA that continues to show no improvement, have the option to transfer to other schools that do. NCLB also has rewards for each LEA that meets the standards. NCLB requires that each teacher be "highly qualified". For a beginning teacher this means that the teacher is certified by the state where they teach, has a bachelor's degree, and has passed a rigorous state test

on subject knowledge and teaching skills (Recognition of teachers in Coventry, Rhode Island, 2004). Secondary teachers are also required to have a major of 30 hours or more in the subject area where they teach (Recognition of teachers in Coventry, Rhode Island, 2004).

Many states use Praxis tests to validate teaching skills and content area knowledge. A teacher evaluation system based solely on these requirements would focus on certifications, an appropriate degree and academic preparation, knowledge area test scores, and ultimately student test scores. These institutional requirements would have a direct influence on pre-service teacher assessment requirements and content.

Current Evaluation Criteria – INTASC

The Interstate New Teacher Assessment and Support Consortium (INTASC) is a consortium of state education agencies and national educational organizations dedicated to the reform of the preparation, licensing, and on-going professional development of teachers. Created in 1987, INTASC's primary constituency is state education agencies responsible for teacher licensing, program approval, and professional development. Its work is guided by one basic premise: An effective teacher must be able to integrate content knowledge with the specific strengths and needs of students to assure that *all* students learn and perform at high levels (Interstate New Teacher Assessment and Support Consortium, 2004, para. 1).

Mission of INTASC

The mission of INTASC is to provide a forum for its member states to learn about and collaborate in the development of:

- compatible educational policy on teaching among the states
- new accountability requirements for teacher preparation programs
- new techniques to assess the performance of teachers for licensing and evaluation
- new programs to enhance the professional development of teachers

In 1992, INTASC released its core standards and achieved some consensus around what beginning teachers should know and be able to do. Based on this, they turned their attention to how they might assess knowledge and skill (Interstate New Teacher Assessment and Support Consortium, 2004, para. 2). Council of Chief State School Officers (CCSSO) determined that: all licensing tests should be standards-based; a single licensing test is inadequate in that it will not provide enough evidence of a candidate's capabilities for a permanent teaching license; and states must assess what a candidate knows and can do (Council of Chief State School Officers, 2004, para. 1). The Interstate New Teacher Assessment Support Consortium (Interstate New Teacher Assessment and Support Consortium, 2004, para. 4) has standards in the following areas: content pedagogy, student development, diverse learners, multiple instructional strategies, motivation and management, communication and technology, planning, assessment, reflective practice, and school and community involvement.

These standards reflect the requisite knowledge, skills, and attitudes necessary for teachers starting their careers (Interstate New Teacher Assessment and Support Consortium, 2004, para. 4). Due to NCATE's alignment with INTASC standards, these standards would have a direct influence on pre-service teacher assessment criteria.

Current Evaluation Criteria – NBPTS

The National Board for Professional Teaching Standards (NBPTS) was created in 1987 after the Carnegie Forum on Education and the Economy's Task Force on Teaching as a Profession released A Nation Prepared: Teachers for the 21st Century on May 16, 1986 (National Board for Professional Teaching Standards, 2004, para. 1). The NBPTS is an independent, nonprofit, nonpartisan organization governed by a board of directors, the majority of whom are classroom teachers. Other members include school administrators, school board leaders, governors and state legislators, higher education officials, teacher union leaders, and business and community leaders (National Board for Professional Teaching Standards, 2004, para. 2).

The National Board for Professional Teaching Standards (NBPTS) believes that the most important thing this country can do to improve schools and student learning is to strengthen teaching (National Board for Professional Teaching Standards, 2004, para. 1). NBPTS is leading the way in making teaching a profession dedicated to student learning and to upholding high standards for professional performance. NBPTS has raised the standards for teachers and created performance-based assessments that demonstrate application of the standards (National Board for Professional Teaching Standards, 2004, para. 2). The mission of NBPTS is to improve teaching and learning by:

- maintaining rigorous standards for what teachers should know and be able to do
- providing a national voluntary system for certifying teachers who meet these standards

- advocating related education reforms to integrate National Board Certification in American education and to capitalize on the expertise of National Board Certified Teachers (National Board for Professional Teaching Standards, 2004, para. 3).

National Board Certification measures a teacher's practice against a set of rigorous standards. The process of being certified is extensive and performance-based. It involves a series of assessments that include: teaching portfolios, student work samples, videotapes and thorough analyses of the candidates' classroom teaching and student learning. Teachers also complete a series of written exercises that determine the depth of their subject-area knowledge, as well as their understanding of how to teach their subjects to students (National Board for Professional Teaching Standards, 2004, para. 5).

There is increasing support for the National Board's efforts to improve education by improving teachers through their certification process. Associations and administrators at the national and local levels are providing support and recognition programs for teachers seeking National Board Certification. Colleges and universities have also organized support programs for certification candidates and many are aligning their teacher preparation curriculum to reflect the National Board's standards for accomplished teachers (National Board for Professional Teaching Standards, 2005, para. 5). More businesses are becoming involved by offering scholarships for teachers seeking National Board Certification and by providing support services for teachers during their candidacy (National Board for Professional Teaching Standards, 2005,

para. 5). NBPTS assessment criteria align with other organizations when they emphasize subject matter knowledge, teaching skills, and performance-based assessment. If universal national teacher certification becomes a reality, it will have a profound effect on the consistency of teaching quality nation-wide and on teacher assessment and training.

Comparison of Major Evaluation Criteria

After reviewing each organization's mission statement and their evaluation criteria or areas of interest concerning teaching quality and improvement, there appears to be a common set of shared criteria emerging. These criteria indicate that pre-service teachers should be evaluated on their knowledge and abilities; planning and preparation; their ability to establish and manage a classroom environment conducive to learning; their ability to instruct students and provide feedback; and their ability to fulfill professional responsibilities e.g. maintain accurate records, communicate with students' families, contribute to the school and district, demonstrate professionalism, and grow professionally. Additional criteria the system should track are related to teacher training institution accreditation requirements e.g. providing teaching experiences in diverse classrooms, providing qualified supervisors during student teaching, and providing formative and summative evaluations. If these criteria are common themes among all or most all of the major standards organizations of the past three decades, then it seems that they should be included in the pre-service teacher evaluation system being developed.

Current Evaluation Process Shortcomings

Traditional in-service teacher evaluation with its focus on the teaching process is under attack and flawed for the following reasons:

1. the limited sample size
2. the limited focus of any given observation
3. the artificial nature of scheduled observations
4. its failure to reflect responsibilities outside the classroom (Stronge, 1997).

Another flaw in the existing in-service teacher evaluation process is rating inflation evidenced by the fact that most teachers receive equally high ratings (Manatt, 1997). If everyone receives equally high ratings it is difficult to identify outstanding teachers versus less effective ones. It also makes it difficult to detect increases or decreases in a teacher's effectiveness over time. When ratings are consistently high over time for individual teachers and for teachers in general due to rating inflation, what determines which teaching practices to continue and which ones to correct? What determines when to intervene and help a teacher return to teaching excellence? The new approaches to accountability emphasize early intervention, peer review, and recognition of exemplary teachers who serve as mentors or lead teachers (Improving teacher accountability and incentives, 2004, para. 2).

Another shortcoming of the current evaluation system is that the mostly manual data collection techniques are labor intensive and prone to error. Currently, on-site teacher evaluations are generally pencil and paper exercises which must be reentered into databases, spreadsheets, or electronic files to be analyzed. This presents an extra opportunity for data recording errors and adds additional time between when evaluation

data are collected and recording is complete. This provides only delayed feedback for administrators and teachers which is often far removed from the actual collection date. According to Fred Miser, good feedback should be timely. He feels that the best feedback occurs daily and it should be constructive, specific, focused on behavior, and based on personal observation (Miser, 2006, para. 1). Victoria Kaprielian believes that feedback is most effective when it occurs as close to the behavior it addresses as possible (Kaprielian, 1998). By using a computer database system to record teacher evaluation data on-site and to generate reports, feedback timeliness and accuracy can be improved.

Pre-service teacher evaluations systems share some but not all of the problems that in-service teacher evaluation processes have experienced. The problems they share are:

1. the limited focus of any given observation
2. the artificial nature of scheduled observations
3. failure to reflect responsibilities outside the classroom
4. rating inflation
5. manual data collection techniques
6. delayed feedback

Arthur Levine (2006), past president of Teachers College at Columbia University and current president of the Woodrow Wilson National Fellowship Foundation, is an outspoken critic of the teacher education and evaluation process. He authored Educating School Teachers which cites the following criticisms of current teacher education programs and teacher training institutions:

1. Many students seem to be graduating from teacher education programs without the skills and knowledge they need to be effective teachers.
2. There is no standard approach to preparing teachers.
3. The teaching experience of teacher education institution faculty members is either too brief or is not recent.
4. Teacher education curriculum is fractured with little continuity between courses.
5. Admissions standards are too low.
6. State, peer review, and accrediting quality control processes do not maintain high minimum standards and they focus on process and not on substance. Graduation from an NCATE (National Council for the Accreditation of Teacher Education) accredited school doe not assure program quality.
7. Fifty-four percent of teachers graduate from Masters I universities which on average have lower admissions and graduation standards than doctoral extensive or doctoral intensive schools. Master's I (comprehensive) colleges and universities offer a wide range of baccalaureate programs and are committed to graduate education through the master's degree.
8. Masters I schools are less effective than research institutions (Levine, 2006, pp. 1-6).

Levine (2006, p. 22) also suggests that states develop longitudinal data collection systems to follow each student’s academic progress. Levine (2006, p. 23) believes that this will help improve schools, enhance student achievement, and help ascertain the impact of recent teacher education graduates on student achievement.

These problems need to be addressed in both in-service and pre-service teacher evaluation systems and processes. This research and development effort will focus on addressing the issues related to pre-service teacher evaluations.

What Needs to Be Done

The issues of timeliness, rating inflation, limited focus of individual observations, the artificial nature of scheduled observations, and ease of data collection are issues faced by those who evaluate teachers who are currently in the classroom and are issues that pre-service teacher training institutions need to address. In light of these shortcomings in current pre-service teacher evaluation and reporting processes, any new computer based system needs to go beyond just automating existing processes and systems which are flawed. Actual pre-service teacher effectiveness measurements must measure the teacher's preparation to teach and measure the effects of the actual teaching on student learning. This cannot always be adequately measured by student achievement on tests that are compared to expected "norm-referenced" scores. Any new teacher evaluation system must measure core competencies and the preparedness to teach but it must allow for the addition of assessment measures that evaluate "a broad repertoire of skills and knowledge consistent with the holistic needs of students" (Dewey, 1990). The new system must identify and attempt to fix existing flaws as well as use technology to make the evaluation process more efficient. Technology should make it easier to collect data from multiple observers that are closest to the actual teaching environment. The evaluation system should provide the capability to record and compare evaluations over time. Levine (2006, p. 27), suggests that effective mechanisms for teacher quality control must be developed to help improve

teacher education programs and that they must include mechanisms for collecting longitudinal data. The new system must also be flexible and scalable to accommodate changes in evaluation content and processes and to accommodate the need to collect new types of data. The system should be easy to use so that it facilitates recording and analyzing frequent observations.

As suggested in "Teacher Assessment and Professional Development" the system should use assessments that most effectively capture teacher practice; evaluators must be effectively prepared to evaluate; the data collection burden must be minimized; and there must be common agreement on teaching quality (Teacher assessment and professional development, 2001, para. 1).

Current Teacher Evaluation Tools

Two commercial, pre-service evaluation tools dominate the current market: LiveText® and TaskStream®. Both products provide features beyond the scope of this research and development effort.

LiveText® provides web-based, customizable portfolio management, course management, and assessment tools. LiveText® supports program as well as individual student assessment. It provides a comprehensive repository of national, state, and local assessment standards and benchmarks that can be integrated into student portfolios and course assignments. LiveText® allows students to grant access to employers who wish to review their portfolios. LiveText® allows program administrators, assessment coordinators, and faculty to create assessment templates and rubrics and integrate them with national, state, and institutional standards and benchmarks. It supports summative and formative evaluations. The system provides

scoring, measurement, and reporting features. It allows a college or university to create, manage, and maintain all of its accreditation evidence in one system (Learning, assessment, & accreditation solutions, 2006). LiveText® is subscription-based and offers subscriptions to individuals or institutions (Learning, assessment, & accreditation solutions, 2006).

TaskStream® provides web-based, customizable portfolio management, course management, and assessment tools. TaskStream® supports program as well as individual student assessment, aggregate and disaggregate data, and growth over time data. TaskStream® allows program administrators, assessment coordinators, and faculty to create assessment templates and rubrics and integrate them with national, state, and institutional standards and benchmarks. The system provides scoring, measurement, and reporting features. It provides a rubric wizard. It supports summative and formative evaluations. It allows an institution to create, manage, and maintain all of its accreditation evidence in one system. TaskStream® is subscription-based and offers subscriptions to individuals or institutions (Accountability Management System, 2007, para. 1).

Since both LiveText® and TaskStream® are feature-rich products they are expensive especially when compared to the internally developed evaluation and reporting systems that many institutions use. Some of the cost of these products can be passed on to students who pay for the privilege of creating, maintaining, and posting their portfolios using these products. One of the goals of the needs assessment will be to determine if teacher training institutions are using internally developed evaluation systems or purchased systems. The needs assessment should also help determine

whether affordability and being able to tailor the system to meet specific institutional needs are deciding factors. One of the questions this study hopes to answer is, “Do teacher training institutions need feature-rich commercial evaluation and reporting systems or will internally developed systems that use of-the-shelf software meet their needs?”

Conclusion

The major professional organizations concerned with teacher training institution accreditation and improving teaching seem to agree on what adequate pre-service teacher evaluation criteria are and they agree that timely evaluations can promote improved teacher training. The one element that seems to be missing is a user-friendly tool to effectively and efficiently record, organize, report, and analyze the evaluation data. The intent of this research and development effort is to create an affordable, easy-to-use, pre-service teacher evaluation system that will be portable, cost effective, and customizable to meet local needs. By providing this tool, the administrative load should be appreciably reduced and the timeliness of feedback should be improved. The database associated with this tool should provide a rich resource for tracking pre-service teacher performance over time and allow comparison of the performance of pre-service teachers and their peers. Reducing administrative burden, could allow supervising professors and teacher mentors to do more frequent evaluations. More frequent and timely evaluations and feedback should help reinforce desirable teaching practices and discourage undesirable teaching practices before they become habit. This should contribute to overall improved teacher preparation. After searching for an affordable, easy-to-use tool that focuses on recording pre-service teacher summative

and formative evaluations, none was found. Therefore, a need seems to exist for one to be developed. This apparent need will be validated by performing a needs assessment in the next phase of this research and development project.

CHAPTER 3 - METHODOLOGY

Introduction

A ten-phase development approach (Borg & Gall, 1989, p. 1) was used to develop and refine a system prototype. Between iterations, qualitative and formative evaluations will be performed to determine necessary revisions.

Research Questions

The principal questions this research and development study was designed to answer are:

Can an affordable database tool be developed that will improve the efficiency of the pre-service teacher evaluation process and meet the data collection and reporting needs of supervising professors and teacher mentors at NCATE affiliated teacher training institutions?

To answer the principal question of this research and development study, the following questions needed to be answered:

- Do NCATE affiliated teacher education institutions need a computer-based system for recording, analyzing, and reporting pre-service teacher evaluation data during the field experience and student teaching portions of their program of study?
- On what set(s) of standards and/or “best practices” should a pre-service teacher evaluation system be built?
- What demographic and evaluation data need to be collected?
- What functionality should the system provide for its users?

- Can an affordable database tool be developed that will improve the efficiency of the pre-service teacher evaluation process and meet the data collection and reporting needs of supervising professors and teacher mentors at NCATE affiliated teacher training institutions?
- Do teacher training institutions need feature-rich, commercial evaluation and reporting systems or will internally developed systems that use off-the-shelf software meet their needs?

Research Design

Borg and Gall suggest that the following major steps should be followed when doing educational research and development:

1. **Research and information collecting** - needs assessment, review of literature, small-scale research studies, and preparation of report on state of the art.
2. **Planning** – include defining skills to be learned, stating and sequencing objectives, identifying learning activities, and small-scale feasibility testing.
3. **Develop preliminary form of product** – includes preparation of instructional materials, procedures, and evaluation instruments.
4. **Preliminary field testing** – conducted in environment where it will be used.
5. **Main product revision** – revision of product suggested by the preliminary field-test results.
6. **Main field testing** – conducted in environment where it will be used.
7. **Operational product revision** - revision of product suggested by the main field-test results.

8. **Operational field testing** - conducted in environment where it will be used.
9. **Final product revision** - revision of product suggested by the operational field-test results.
10. **Dissemination and implementation** – help those who want to adopt the product implement it (Borg & Gall, 1989, p. 1).

The researcher followed a modified version of the Borg and Gall (BG) sequence of steps by:

1. surveying teacher licensing officers from Regents Universities and Friends University colleges of education in Kansas to determine the need for the system (BG 1 and 2).
2. reviewing secondary sources to determine common pre-service teacher assessment criteria and reporting needs (BG 1 and 2).
3. developing a system prototype (BG 3).
4. using past and present NCATE evaluation team members as expert evaluators who will provide feedback regarding the validity and functionality of the system prototype (BG 4).
5. making system modifications based on initial feedback (BG 5).
6. using supervising professors from each of the Regents Universities colleges of education and from Friends University to represent the target users and provide feedback regarding the validity, user friendliness, and usefulness of the system (BG 6).
7. making system modifications based on additional feedback (BG 7).

8. making system available to dissertation committee members (replaces BG 8-10).

Internal Review Board Compliance

According to the Kansas State University IRB (Internal Review Board), 45 CFR 46, items 1 and 2 (Kansas State University, 2006, para. 1-2), the subjects in this research project should be "cleared" by the IRB. To comply with this requirement, the researcher submitted an IRB Application to the IRB at Kansas State University. The researcher sent each participant a consent letter (see Appendix A) outlining the role of participants and project duration. Each letter has a closing paragraph stating that the participant agrees to fulfill the role of participant in a timely manner. Each participant signed the letter and returned it to the researcher. The researcher filed these signed letters as part of the project documentation. The researcher completed all six modules of IRB On-Line Training for research involving human subjects.

Participant Selection Criteria

A non-probability, purposive sample from three separate groups helped establish the need for the system and reviewed the prototype during development. Each participant had prior or current involvement in pre-service teacher assessment at a teacher training institution in one or more of the following roles: teacher licensing officer, supervising professor, teacher mentor, NCATE team member, or KSDE team member. In general, participants were selected based on their knowledge of, experience with, and/or current involvement in pre-service teacher education, evaluation, and/or supervision or their involvement in certification of teacher education institutions. It was important for each project participant to have a general knowledge of past and present

teacher evaluation criteria and philosophies. Some participants had specific knowledge of the development of evaluation criteria over time and current best practices for evaluation and reporting. Each participant had experience with and direct involvement in at least one accrediting experience as either an evaluator or as a member of an institution that has been evaluated. Also, each project participant was reasonably computer literate. Since the system will be strongly influenced by NCATE standards which apply to teacher education institutions nation-wide (NCATE, p. 1), this sample was designed to be representative of a population that is involved with pre-service teacher certification and teacher training institution accreditation. The sample included people with enough variety and years of experience with the logistics and data gathering requirements of the pre-service teacher evaluation process to provide the researcher with functional requirements for the development of an initial system prototype which was refined as it is reviewed by participants during the project.

Participant Roles

Participants responded to needs assessment or system usability surveys to provide input regarding the proposed system content and functional requirements; review the system; and provide timely feedback concerning their review of the system prototype. Certifying officers at teacher training institutions completed the Needs Assessment survey. Current or former NCATE evaluation team members responded to the initial system evaluation survey. Supervising teachers at teacher training institutions responded to the intermediate and final surveys regarding system usability. Participants summarized their review of the system by completing a survey form supplied by the researcher.

Site Selection Criteria

The sites chosen for initial, intermediate, and final evaluation of the prototype that was developed were selected based on the availability of at least one qualified project participant at each site. These sites were also chosen because they are associated with the pre-service accreditation process or they are teacher training institutions.

Role of the Researcher

The researcher's role was to conduct research; perform a needs assessment; perform system prototype development tasks; perform prototype evaluations; and refine the prototype to:

- determine if the proposed system is needed.
- determine currently accepted pre-service teacher evaluation criteria and practices
- develop a system prototype
- survey project participants to get their feedback
- refine the prototype
- document the system
- disseminate the system

User Acceptance Criteria

The following user acceptance criteria were applied during prototype reviews:

1. The system meets the functional needs as specified by the project participants.
2. The system is user friendly and self-documenting or intuitive.

3. User documentation is clear and complete.
4. Adequate preventive, detective, and corrective system controls are present to help prevent or detect and correct erroneous data entry attempts.
5. The system meets the functional needs of supervising professors and teacher mentors at teacher education institutions.
6. The system can be maintained by the individuals who use it without the help of external consultants.
7. The system is affordable.

Data Collection Techniques

Since this project involved three sets of participants in separate locations, the researcher used surveys and reviews of existing documents to gather project information. Audio or video recording was not used for this project. A secondary data search was used to determine initial pre-service teacher evaluation best practices and criteria. During the iterative system development process, the researcher recorded participant feedback through e-mail and interview notes. At the end of each development phase the researcher asked each participant to provide feedback by completing a usability survey. This was accomplished by using a written survey.

Sequence of Tasks

The following project tasks were scheduled sequentially and were performed as listed:

Table 3.1 Project Schedule

PROJECT SCHEDULE*		
Task	**Start Date**	**Finish Date**
Initial draft proposal to major advisor	10/29/2005	11/30/2005
Revised draft proposal to major advisor	4/9/2006	4/19/2006
Proposal meeting	5/4/2006	5/5/2006
Revise dissertation proposal	5/6/2006	10/31/2006
Develop needs assessment survey	10/1/2006	10/31/2006
Collect needs assessment data	11/15/2006	11/30/2006
Develop teacher evaluation product prototype	12/1/2006	12/31/2006
Prototype available for initial evaluation	1/15/2007	2/15/2007
Revise product prototype	2/16/2007	2/29/2007
Second evaluation of prototype	3/1/2007	3/31/2007
Second revision of prototype	4/1/2007	5/31/2007
Final evaluation of product	6/1/2008	12/31/2008
Final revision of prototype	1/1/2009	3/20/2009
Approval of completed dissertation – major advisor	2/24/2010	4/10/2010
Dissertation defense	5/2010	5/2010

* This schedule is subject to change based on project participants' response times and availability. If response times are quicker than scheduled, the schedule can be accelerated. Any dates may be changed by the researcher's major advisor.

CHAPTER 4 – TEACHER EVALUATION SYSTEM

The computer-based, pre-service teacher evaluation system developed during this research and development effort was designed to provide supervising professors and teacher mentors with an inexpensive, efficient tool for entering evaluation criteria, recording evaluation results, and generating reports. The system was developed using Microsoft Access 2007 to make it user-maintainable and affordable. The system allows teacher training institutions to enter internally developed evaluation criteria and evaluation rubrics for a variety of evaluation scenarios. Using a database makes it possible to enter evaluator, pre-service teacher, and school records; classroom demographic information; and evaluation criteria and evaluation rubrics once and to make the data available to all authorized system users. This eliminates redundant data entry. It also ensures that all evaluators are using the same evaluation criteria and rubrics. Once data are entered in the database, they are available to all users via drop-down menus, lists, or combo boxes which allow users to click and select data they wish to enter rather than typing it each time. This makes the system easier to use and improves data accuracy and consistency. The system requires entries for key data fields that are necessary to make a record complete and meaningful. Records cannot be entered unless these required fields are populated with valid data. Data entry is reduced whenever possible by using “default” values for data fields where that value is the most common entry. The system incorporates standardized, pre-formatted reporting capabilities. Users can create additional reports and add them to the system menu. The system is menu driven and was designed to be intuitive. The menu structure is:

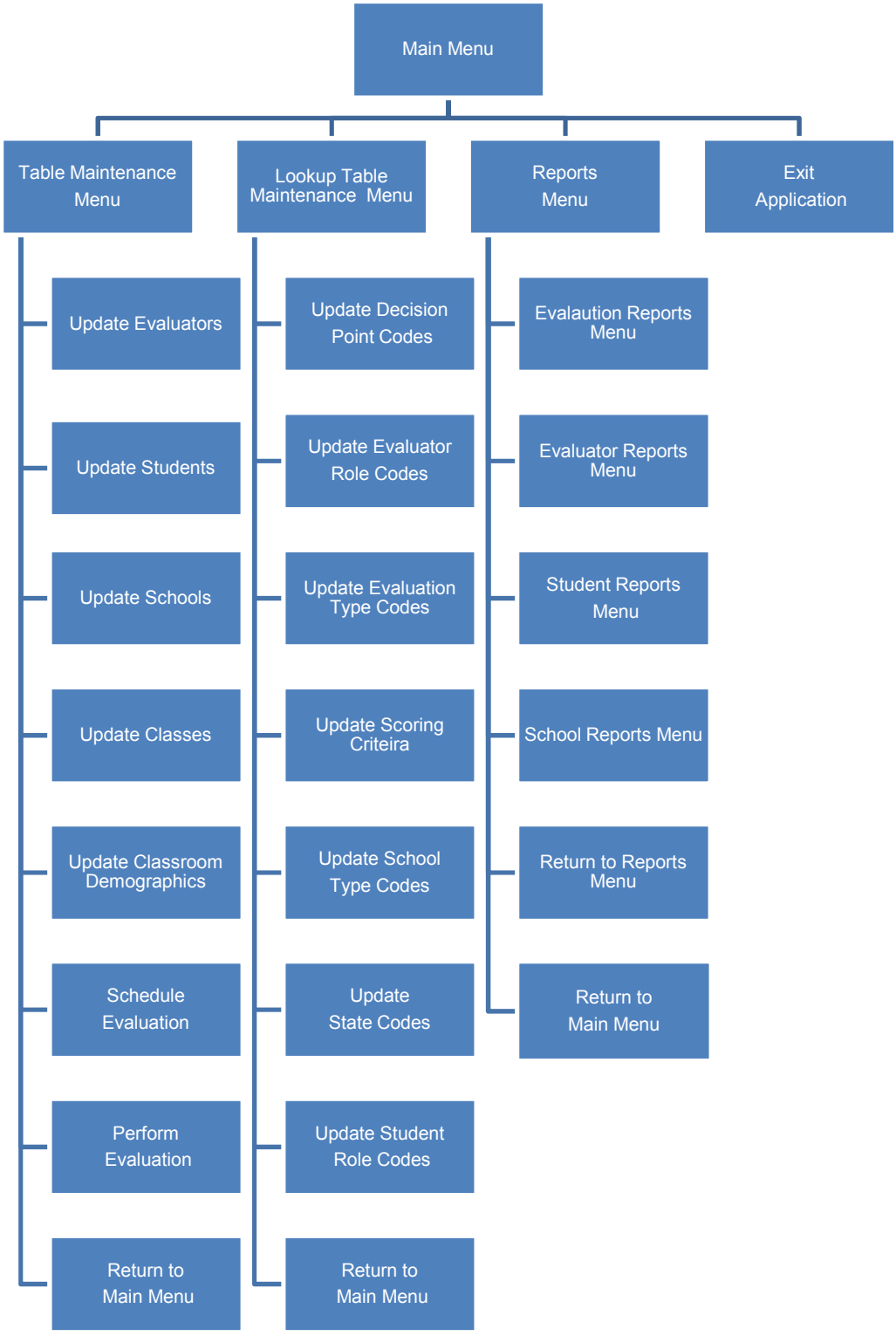

Figure 1 - System Menu Structure

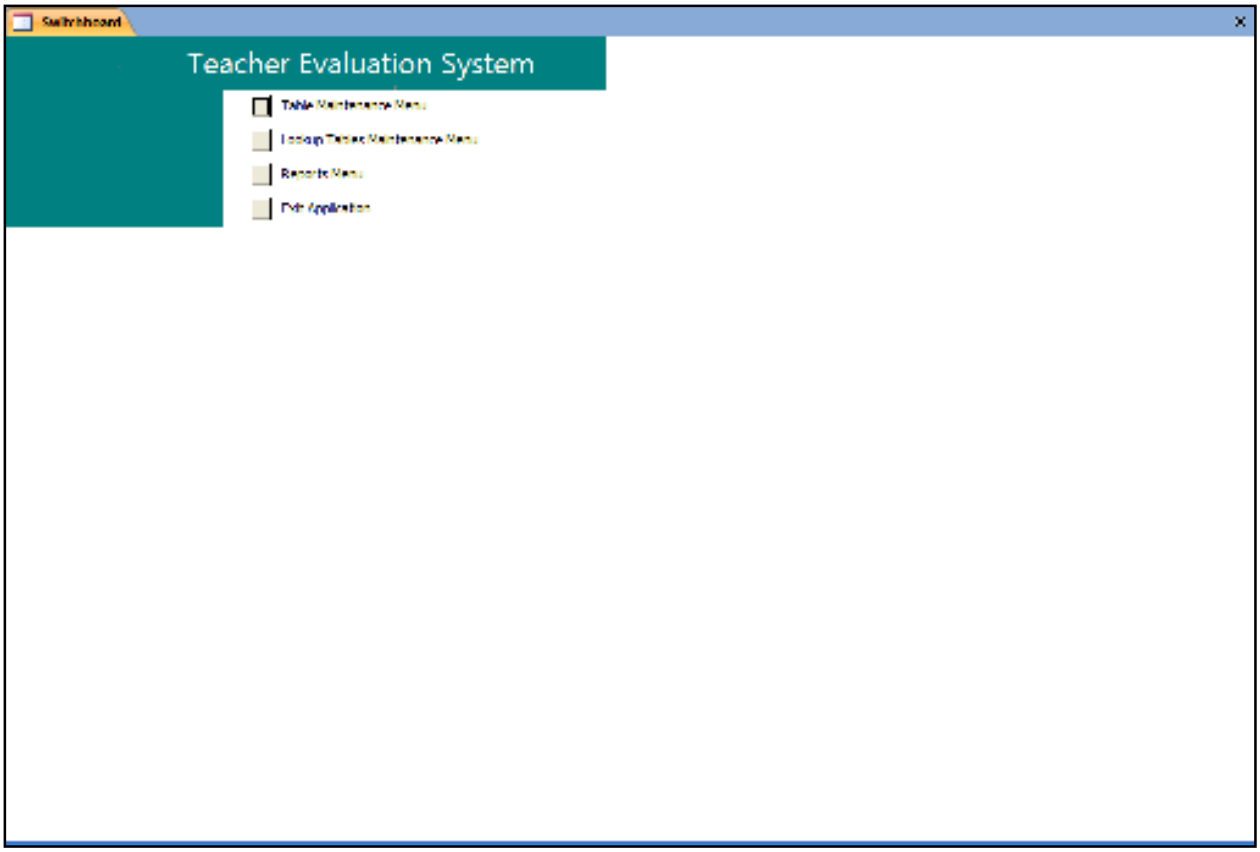

Figure 2 - Main Menu

The Main Menu contains four options: Table Maintenance Menu, Lookup Tables Maintenance Menu, Reports Menu, and Exit Application. The Table Maintenance Menu provides options to maintain evaluator, pre-service teacher, school, class, classroom demographic, and evaluation data. The Lookup Tables Maintenance Menu is a menu that will be accessed infrequently by the person who administers the system, and sets up and maintains system codes and evaluation criteria. These codes and criteria are used by person scheduling and performing evaluations. The codes appear on various forms as list boxes. The use of list boxes and pre-defined codes and evaluation criteria provide consistency from evaluator to evaluator. The Reports Menu provides pre-

formatted reports that provide evaluation schedules and evaluation reports. Additional reports may be created and added to the Reports Menu.

The Table Maintenance Menu provides options to maintain evaluator, pre-service teacher, school, class, classroom demographic, and evaluation data. This menu will be used frequently to schedule and perform evaluations and to update school and classroom demographics data.

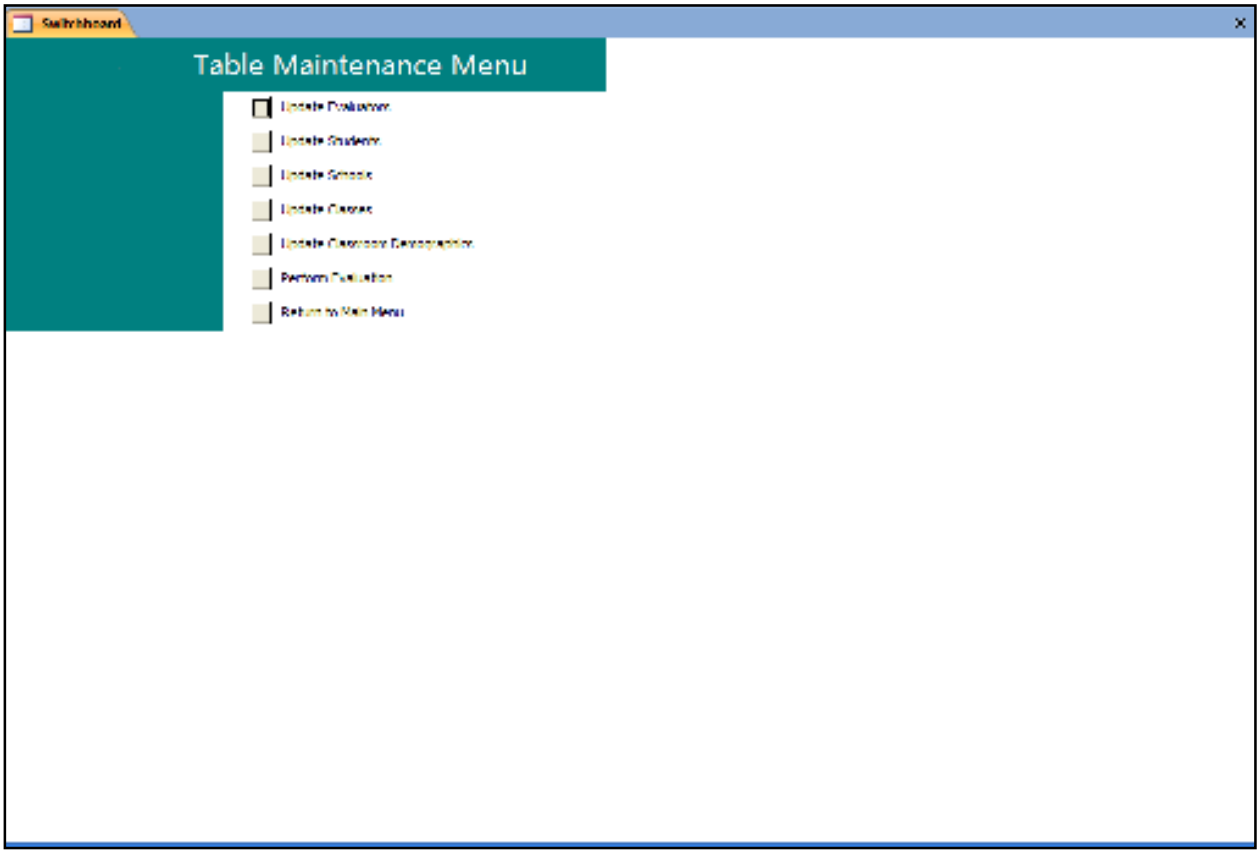

Figure 3 - Table Maintenance Menu

The Update Evaluators menu option provides a form to add, update, delete, browse, and locate pre-service evaluator records. Zip code and phone number fields are pre-formatted so only the numbers need to be typed. The State code field limits the user to choosing only items in the valid state codes table.

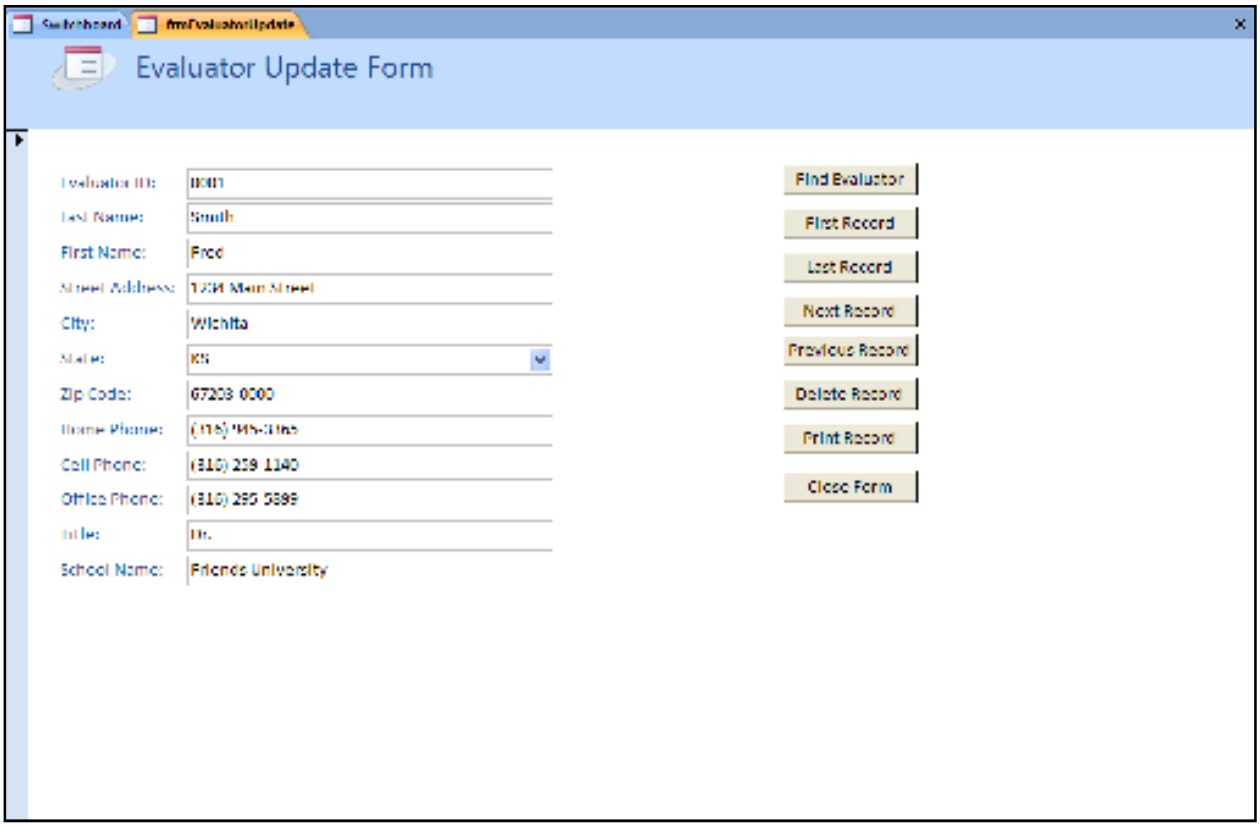

Figure 4 - Evaluator Update Form

The Update Students menu option provides a form to add, update, delete, browse, and locate pre-service teacher records. Zip code and phone number fields are pre-formatted so only the numbers need to be typed. The State code field limits the user to choosing only items in the valid state codes table. The Student Update Form lists scheduled evaluations below the student's biographical data.

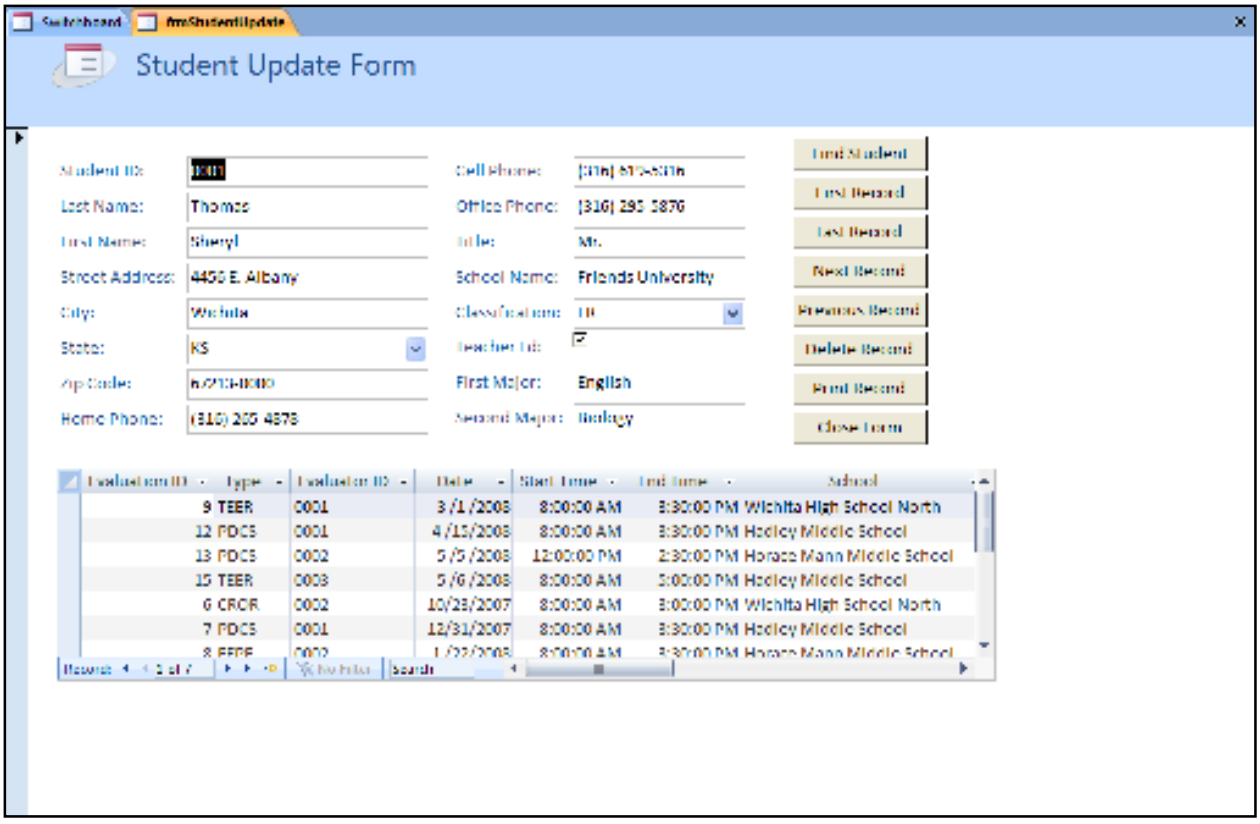

Figure 5 - Student Update Form

The Update Schools menu option provides a form to add, update, delete, browse, and locate school records. Zip code and phone number fields are pre-formatted so only the numbers need to be typed. The State code field limits the user to choosing only items in the valid state codes table. The Type field limits the user to choosing only items in the valid school type codes table e.g. ES – Elementary School.

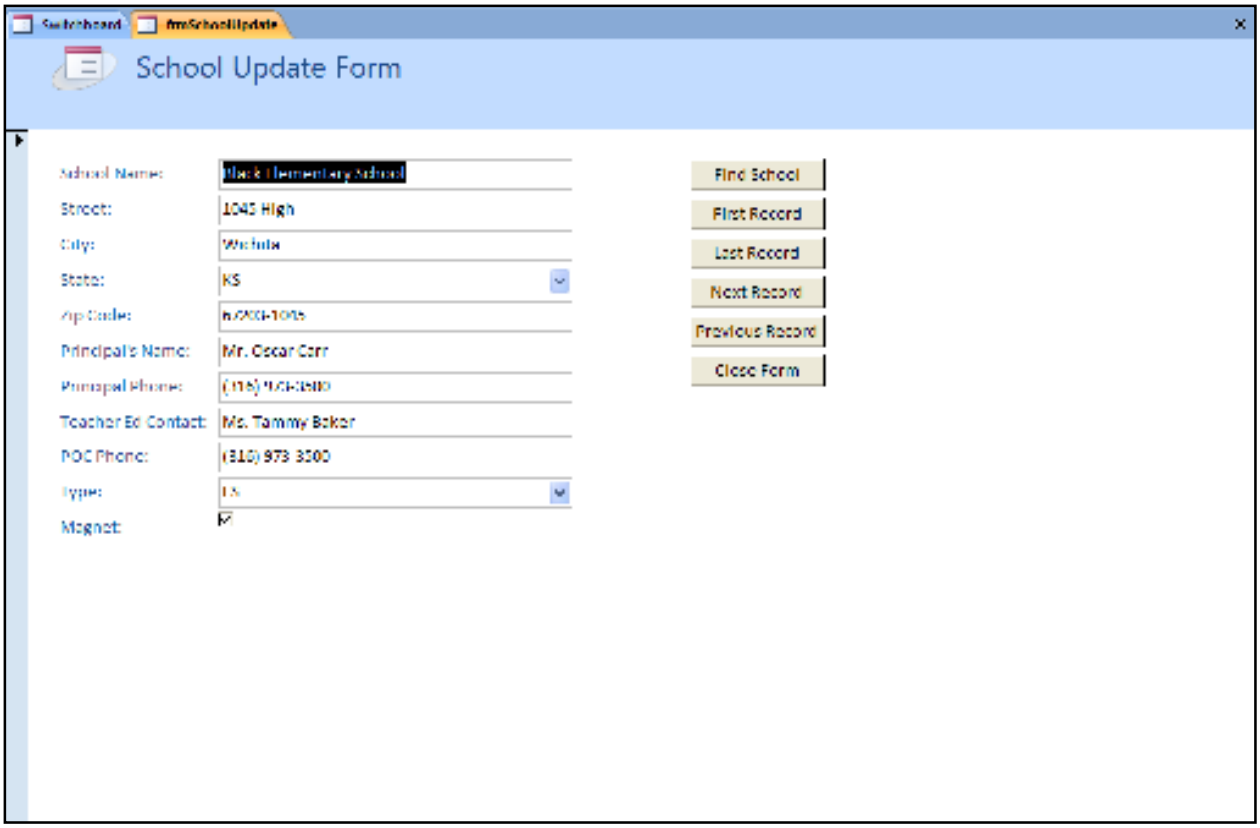

Figure 6 - School Update Form

The Update Classes menu option provides a form to add, update, delete, browse, and locate school class records. The School Name field limits the user to choosing only items in the schools table. School records must be added before classes where evaluations will be performed can be added.

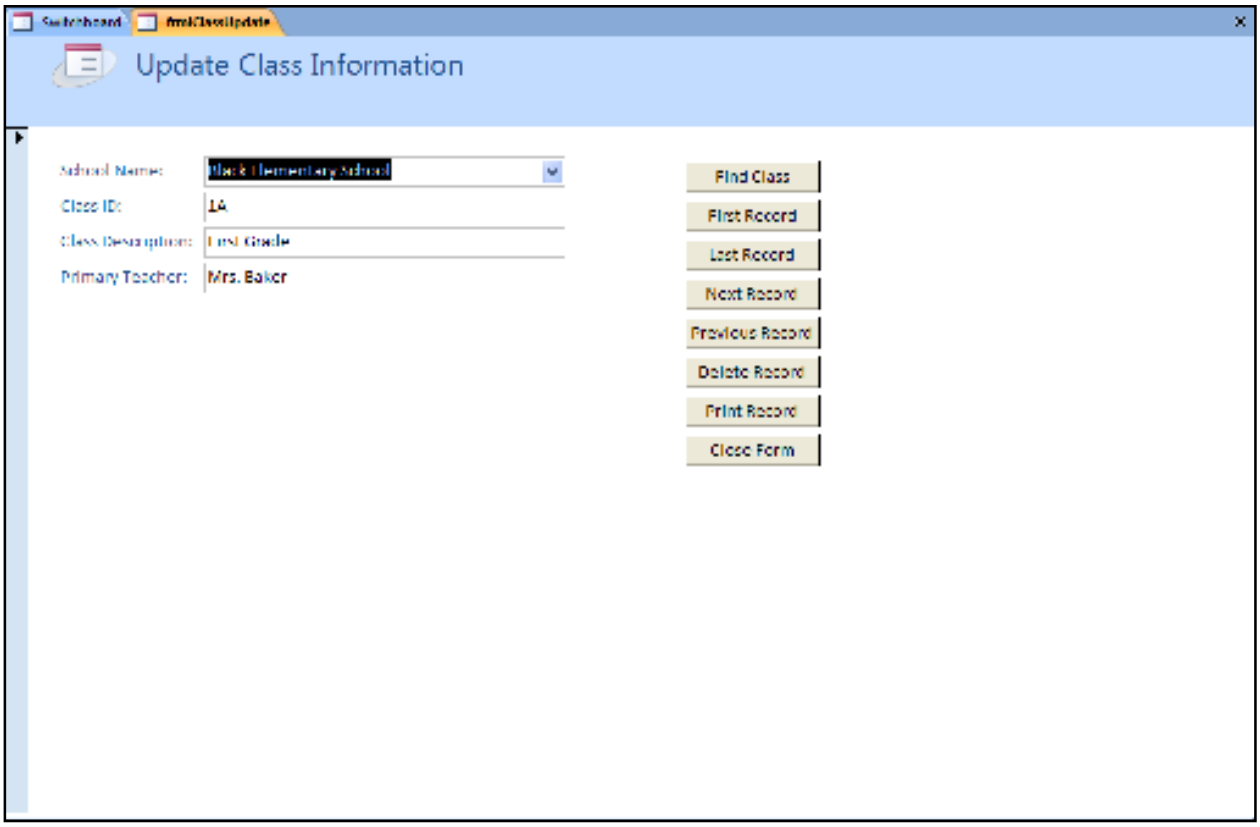

Figure 7 - Update Class Information

The Update Classroom Demographics menu option provides a form to add, update, delete, browse, and locate classroom demographic information. The School Name and Class ID fields limit the user to choosing only items in the schools and class tables. School and class records must be added before classroom demographic information can be added. Recording demographic information by year allows external evaluators to see if teacher education institutions are providing diverse classroom experiences.

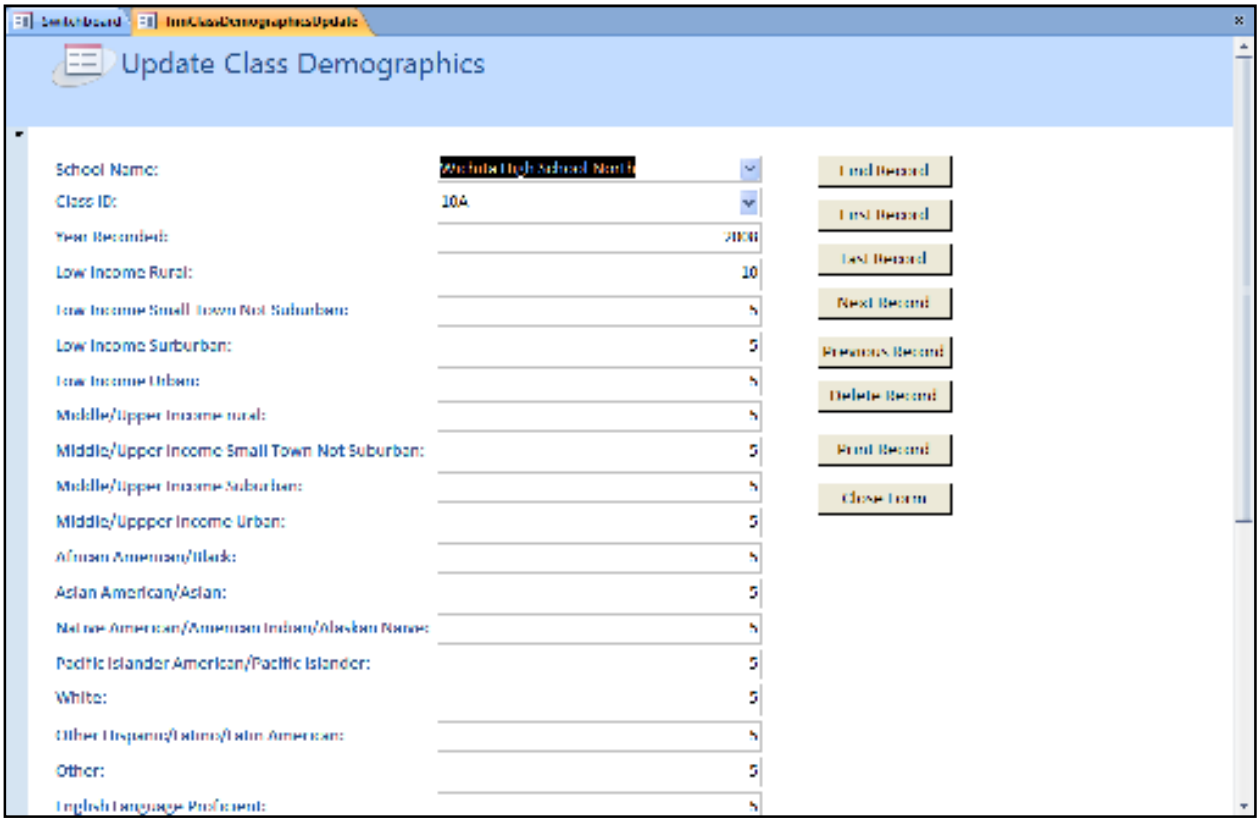

Figure 8 - Update Class Demographics

The Perform Evaluation menu option provides a form to add, update, delete, browse, and locate evaluation information. The form can be used to schedule and perform evaluations. The upper portion of the form contains scheduling information and the bottom portion provides an area to record evaluation data by evaluation type and evaluation criteria. Evaluation criteria are automatically once the evaluation type is entered in the top part of the form. When the user's mouse is placed in the Score column, a grid with evaluation scoring criteria is displayed. Any input area with an arrow in it will display a list of valid items for that field. This insures that only evaluators, students, schools, and classes that have already been entered in other tables can be used. It also limits the user to valid choices in the type, evaluator role, student role, and decision point tables.

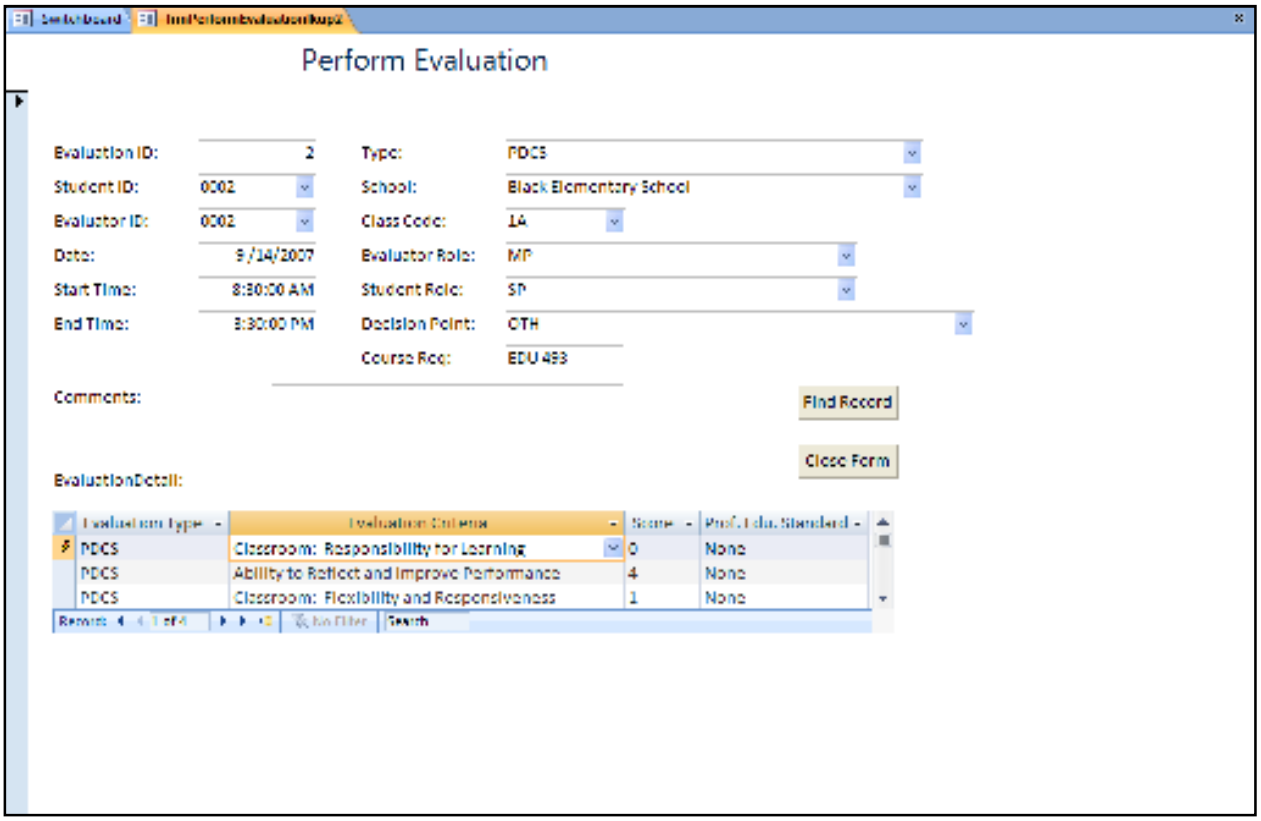

Figure 9 - Perform Evaluation Form

The Lookup Table Maintenance Menu provides options to maintain decision point, evaluator role, evaluation type, school type, student role and state codes and scoring criteria. This menu will be used to enter initial codes and periodically thereafter to maintain table data. The data in these tables is used to populate list boxes on other forms and to maintain uniform coding standards regardless of who is inputting data.

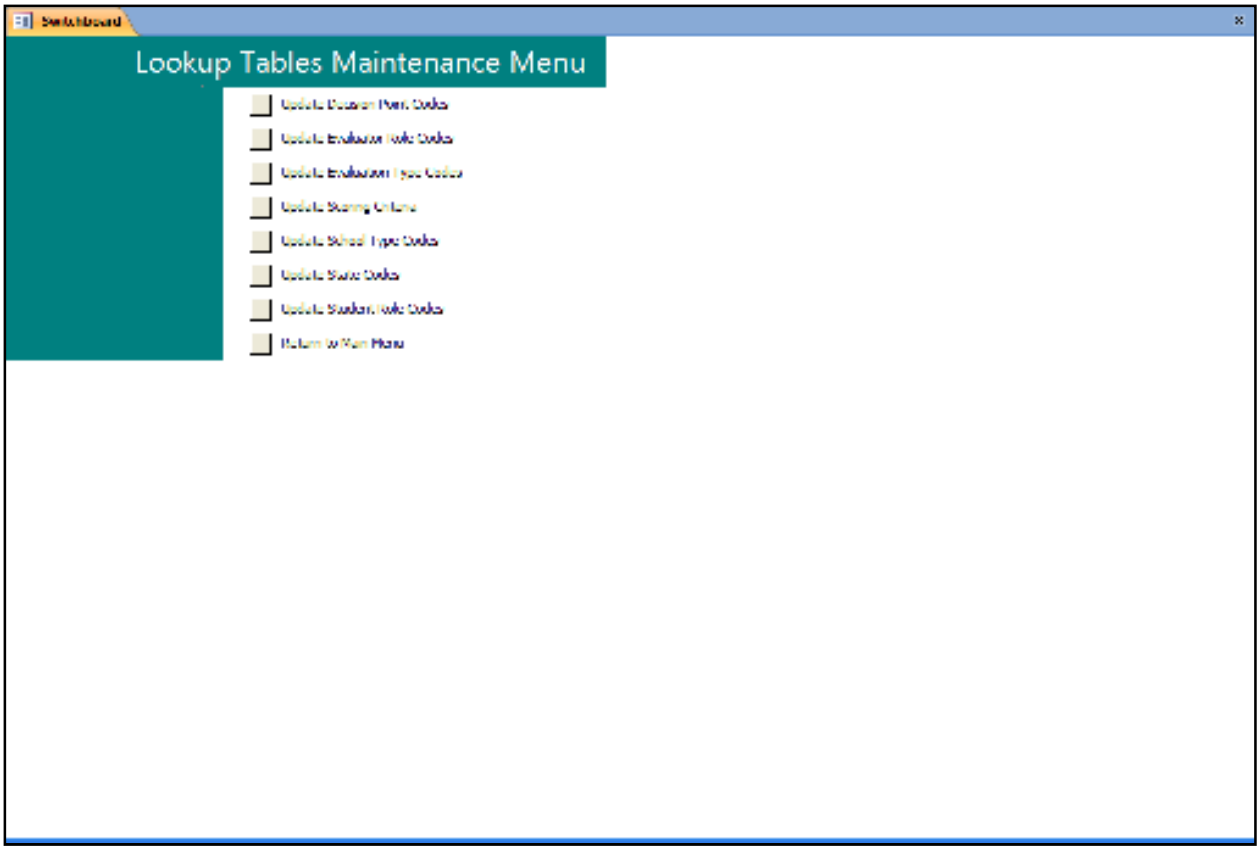

Figure 10 - Lookup Table Maintenance Menu

The Update Decision Point Codes menu option provides a form to add, update, delete, browse, and locate decision point code information. Decision points are critical times in the pre-service teacher evaluation process where pre-service teachers are evaluated to determine if they will continue in the teacher education program or if they will be allowed to student teach. Decision points currently in the system are: DP1 – Decision Point 1 – Admission to Teacher Education; DP2 – Decision Point 2 – Admission to Professional Semester; DP3 – Completion of Student teaching; and OTH – Other Evaluation. Any of these decision points can be edited or deleted and new decision points can be added to this table.

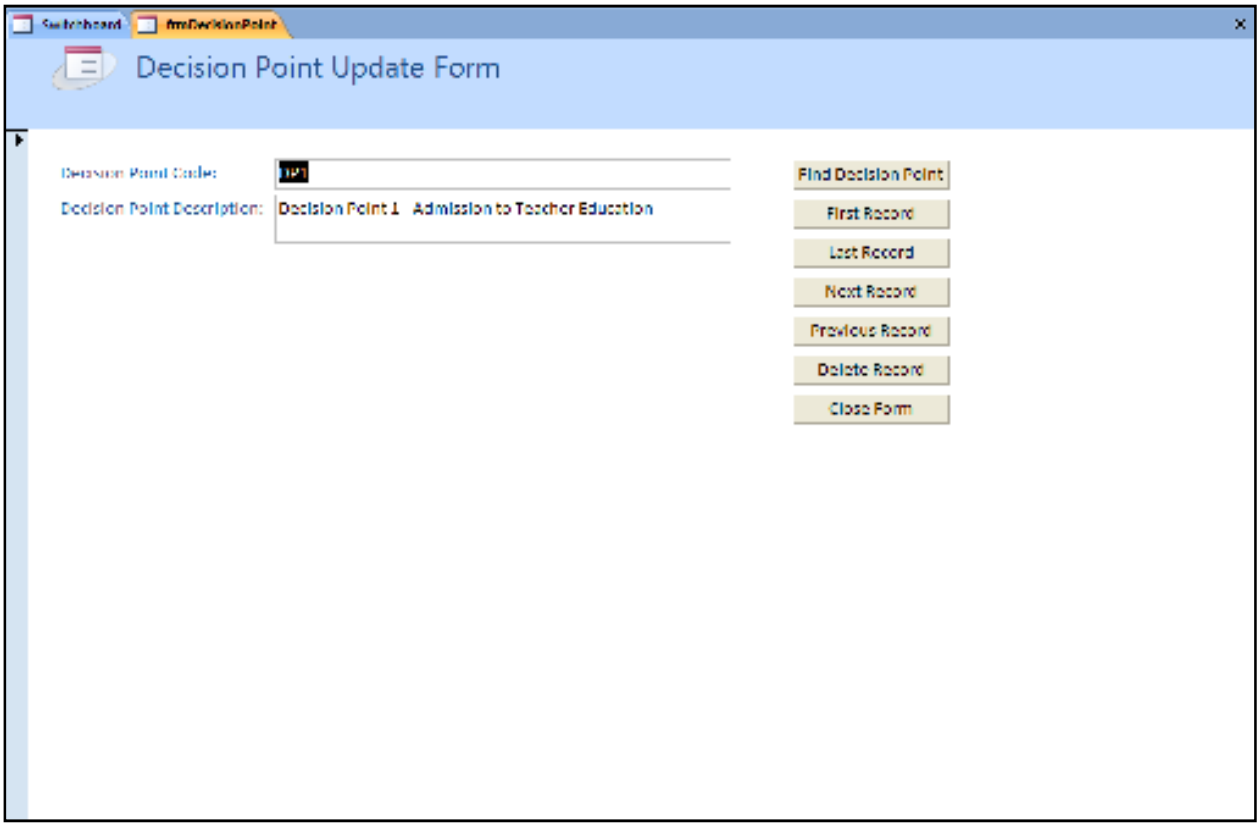

Figure 11 - Decision Point Update Form

The Update Evaluator Role Codes menu option provides a form to add, update, delete, browse, and locate evaluator role code information. Evaluators can serve in one or several roles. Evaluator roles currently in the system are: EP – Education Professor; MP – Major Field Professor; and OP – Other Professor. Any of these evaluator roles can be edited or deleted and new evaluator roles can be added to this table.

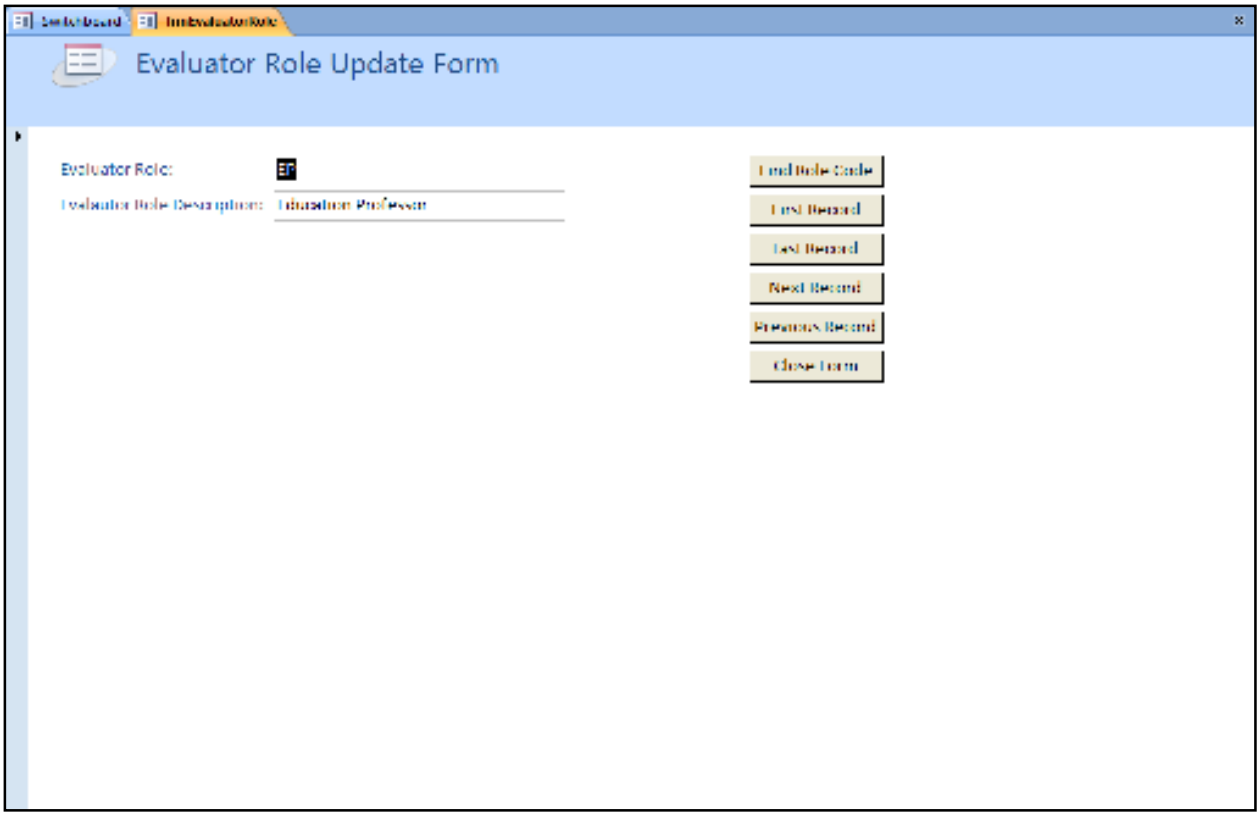

Figure 12 - Evaluator Role Update Form

The Update Evaluation Type Codes menu option provides a form to add, update, delete, browse, and locate evaluation type code information. Evaluation types currently in the system are: PDCS – Professional Disposition and Character; FEPE – Field Experience Participant Evaluation; CROR – Classroom Observation Record; and TEER – Teacher Education Evaluation Rubric. Any of these evaluation types can be edited or deleted and new evaluation types can be added to this table.

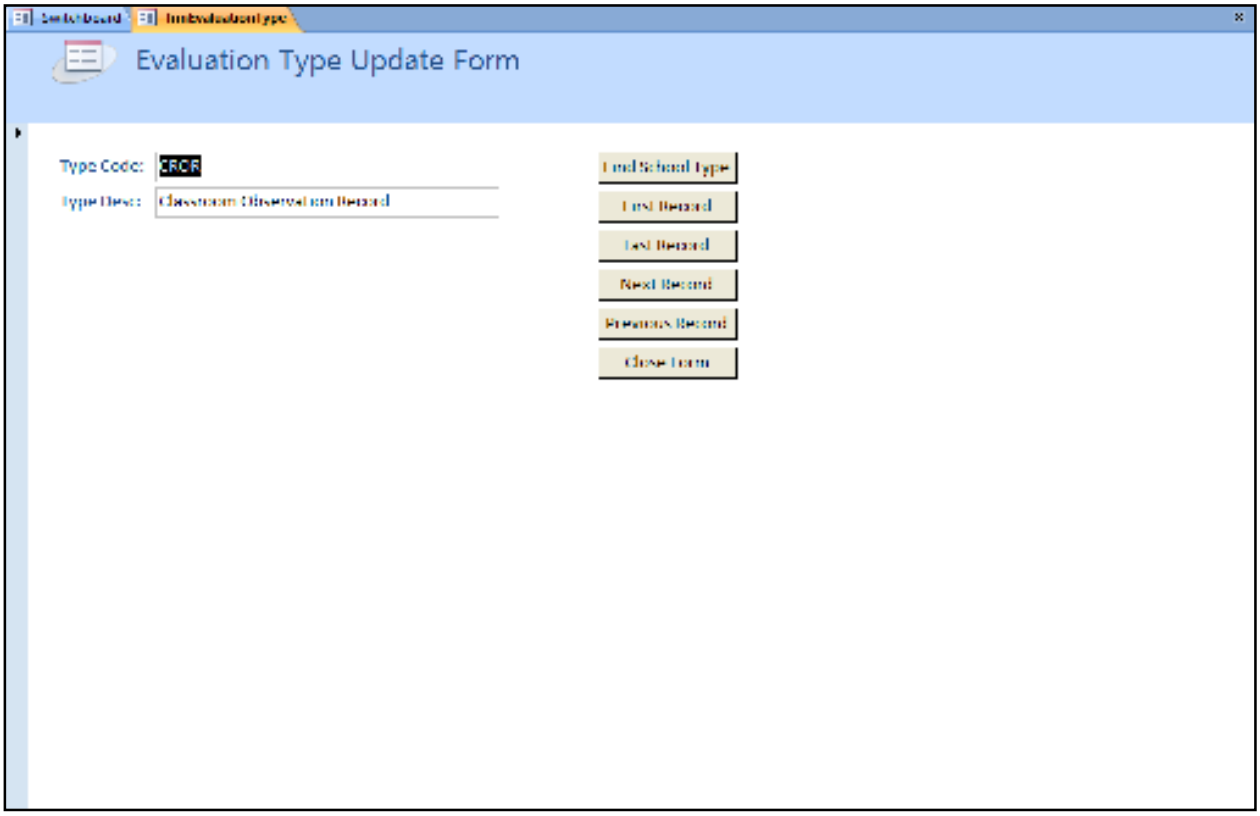

Figure 13 - Evaluation Type Update Form

The Update Scoring Criteria menu option provides a form to add, update, delete, browse, and locate scoring criteria information. Scoring criteria are grouped by evaluation type. Criteria data include: the evaluation type code, the evaluation criteria name, the numeric score, and the rubric description for the numeric score. Any of these scoring criteria can be edited or deleted and new scoring criteria can be added to this table.

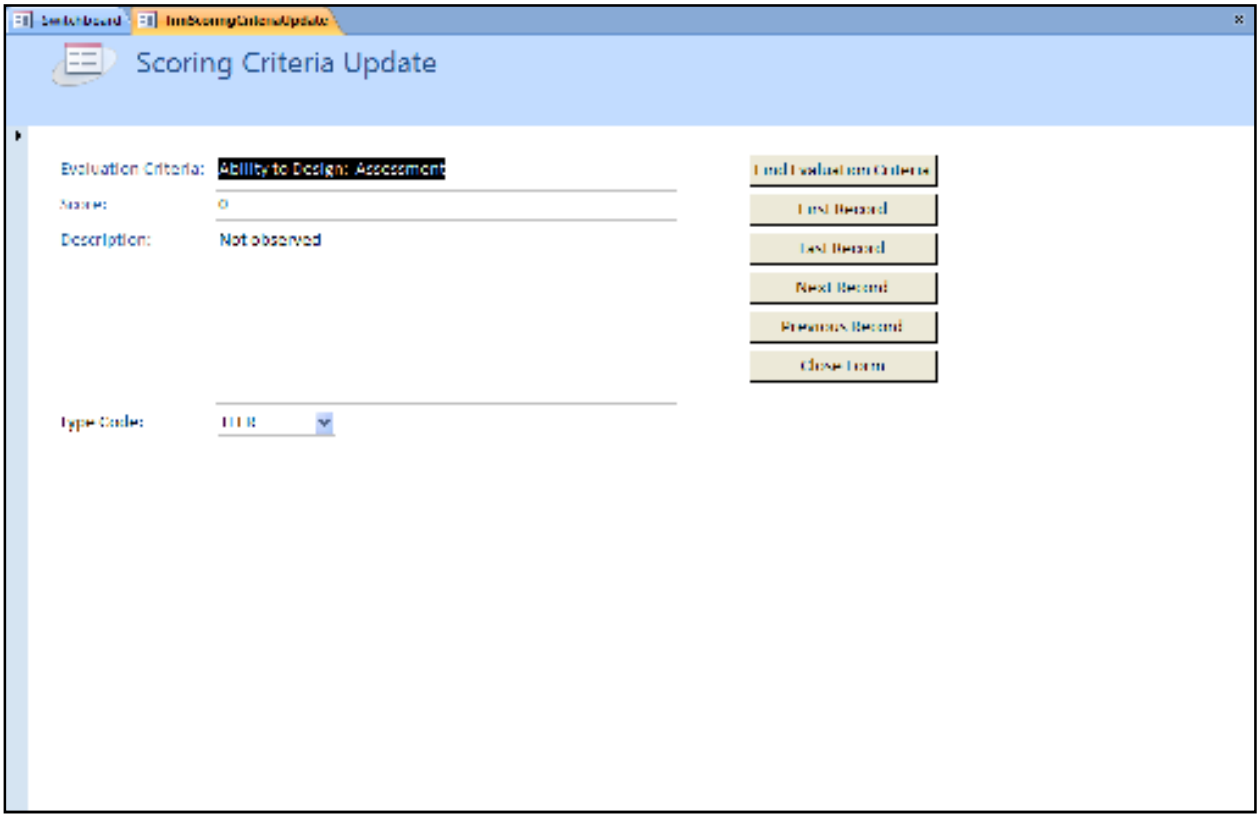

Figure 14 - Update Scoring Criteria

The Update School Type Codes menu option provides a form to add, update, delete, browse, and locate school type code information. School type codes currently in the system are: ES – Elementary School; MS – Middle School; HS – High School; MA – Magnet School; and PR – Preschool. Any of these school types can be edited or deleted and new school types can be added to this table.

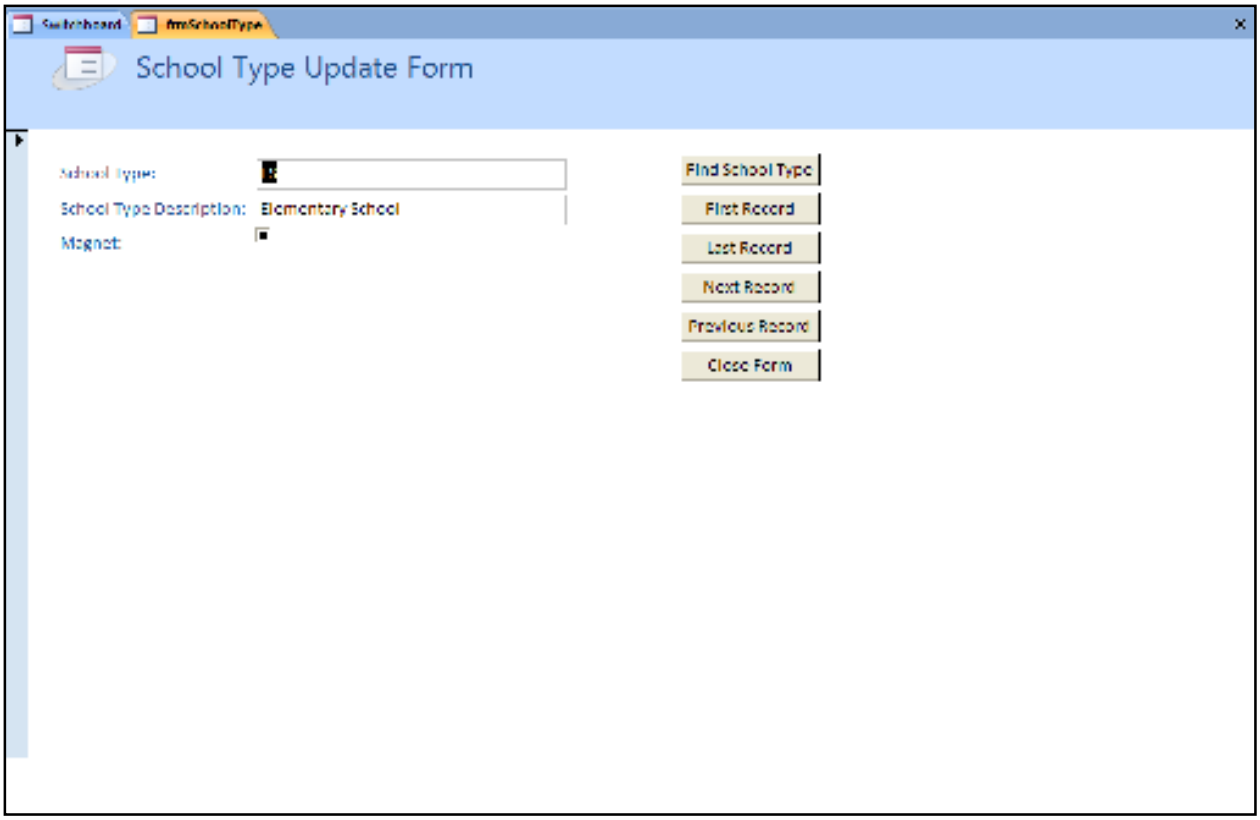

Figure 15 - School Type Update Form

The Update State Codes menu option provides a form to add, update, delete, browse, and locate state code and name information. There is a state code and name entry for each of the fifty states.

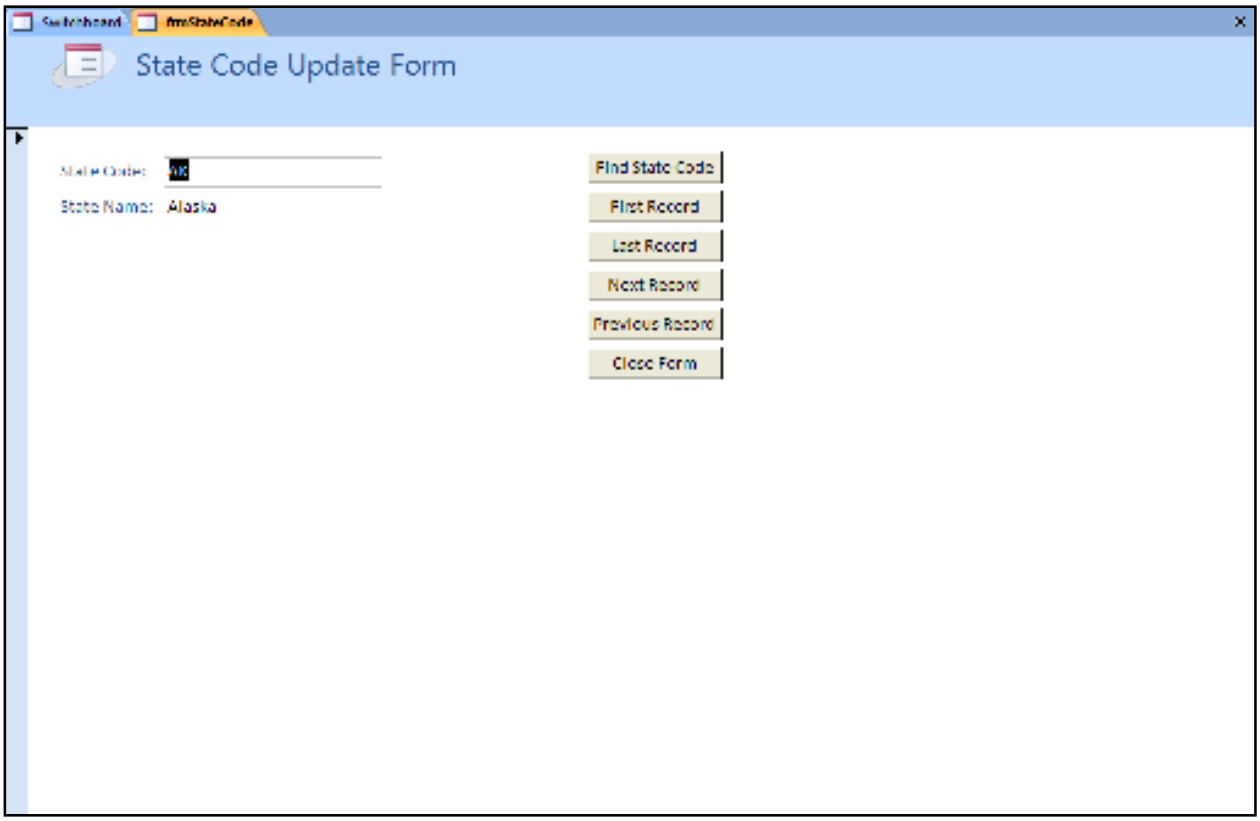

Figure 16 - State Code Update Form

The Update Student Role Codes menu option provides a form to add, update, delete, browse, and locate student role code information. There are several types of student roles: OO – Observation Only; OA – Observation/Assisting; AT – Assisting/Teaching Lesson(s); SP – Special Project; and ST – Student Teaching. Any of these student role codes can be edited or deleted and new student role codes can be added to this table.

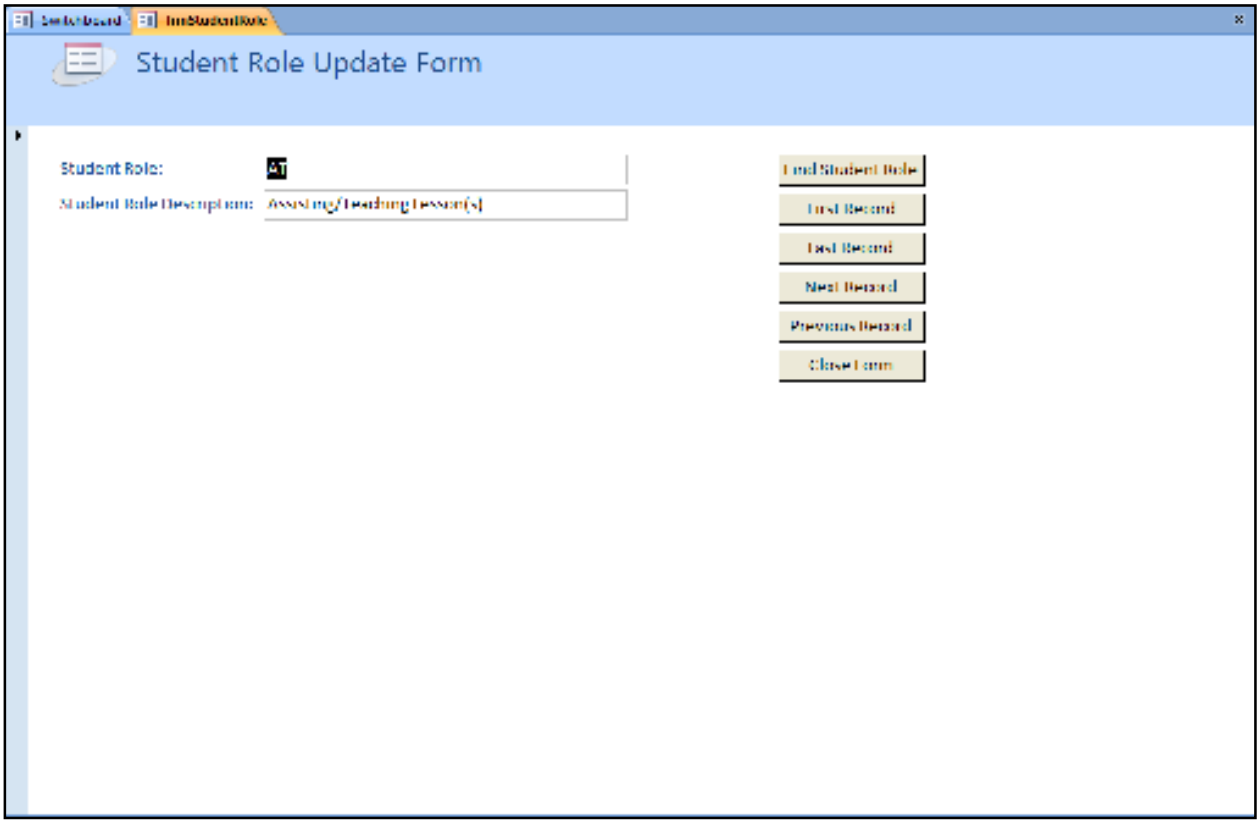

Figure 17 - Student Role Update Form

The Reports Menu provides options to display preformatted evaluation reports. Report options are grouped by report category under sub menus. The hierarchy for this menu and its sub menus is:

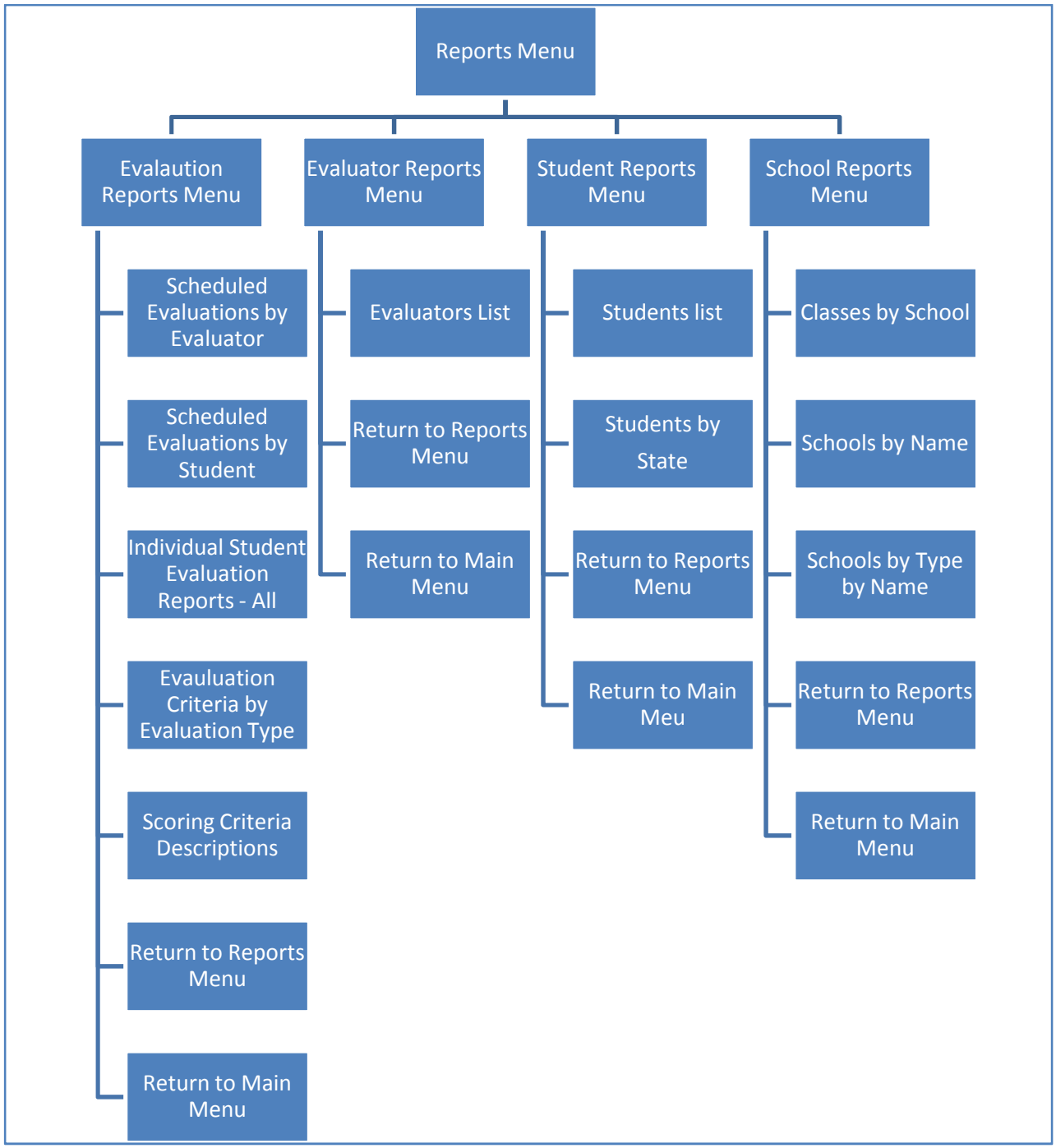

Figure 18 - Reports Menu Hierarchy

The Reports Menu provides options to open sub menus that list all of the reports available in the system grouped by major category. Any of these reports can be modified or deleted and additional reports can be added to any of these sub menus.

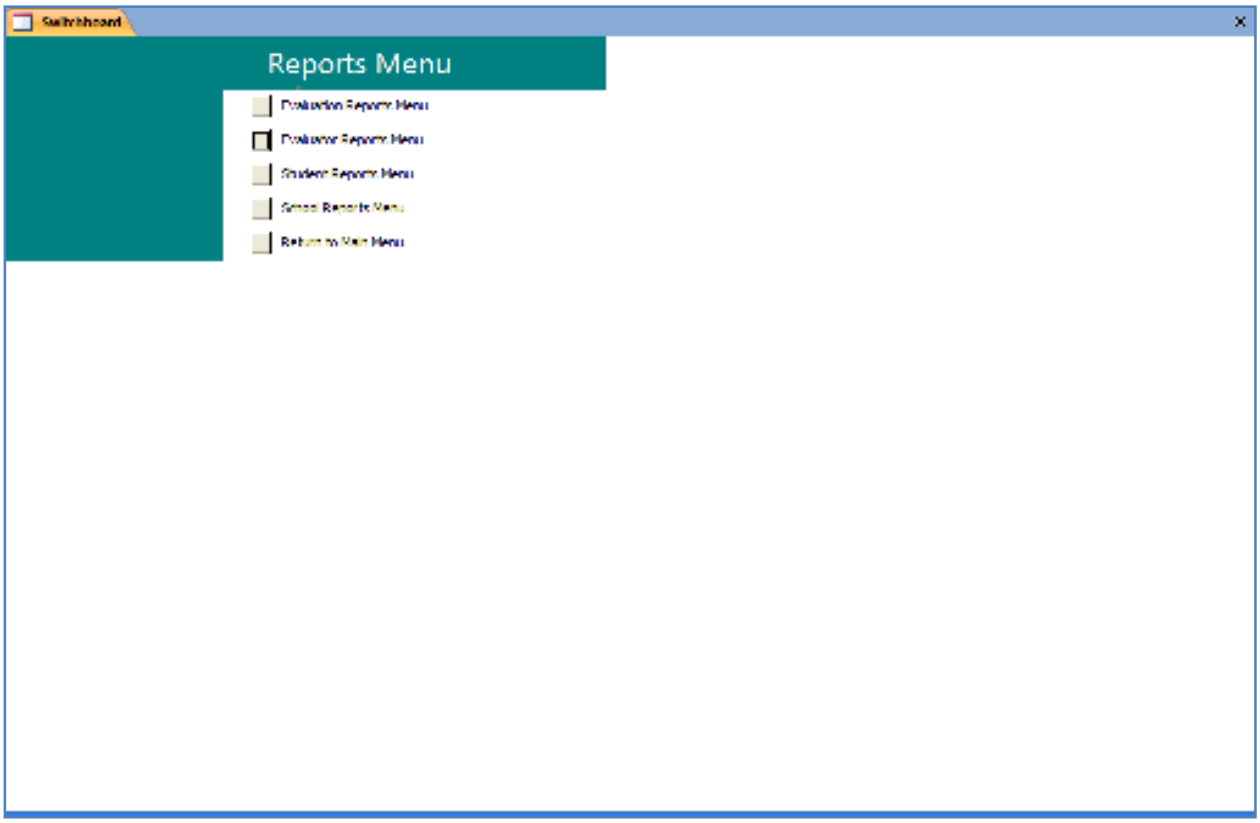

Figure 19 - Reports Menu

Reports currently available in the Evaluation Reports Menu are: Scheduled Evaluations by Evaluator, Scheduled Evaluations by Student, Individual Student Evaluation Reports – All, Evaluation Criteria by Evaluation Type, and Scoring Criteria Descriptions. Any of these reports can be modified or deleted and new preformatted reports can be added to this menu.

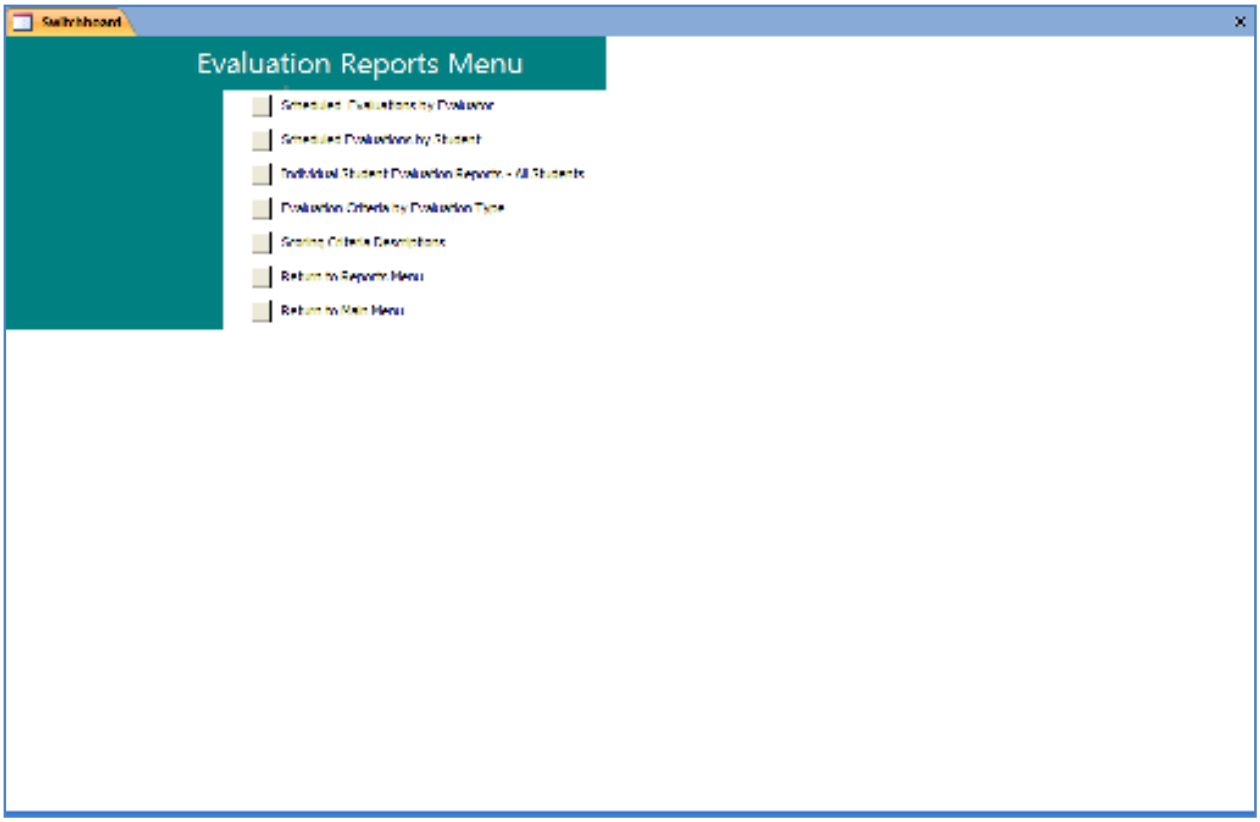

Figure 20 - Evaluation Reports Menu

The Scheduled Evaluations by Evaluator report lists scheduled evaluations sorted by scheduled date and by evaluator. The system can omit scheduled evaluations that have dates prior to the date the report is run.

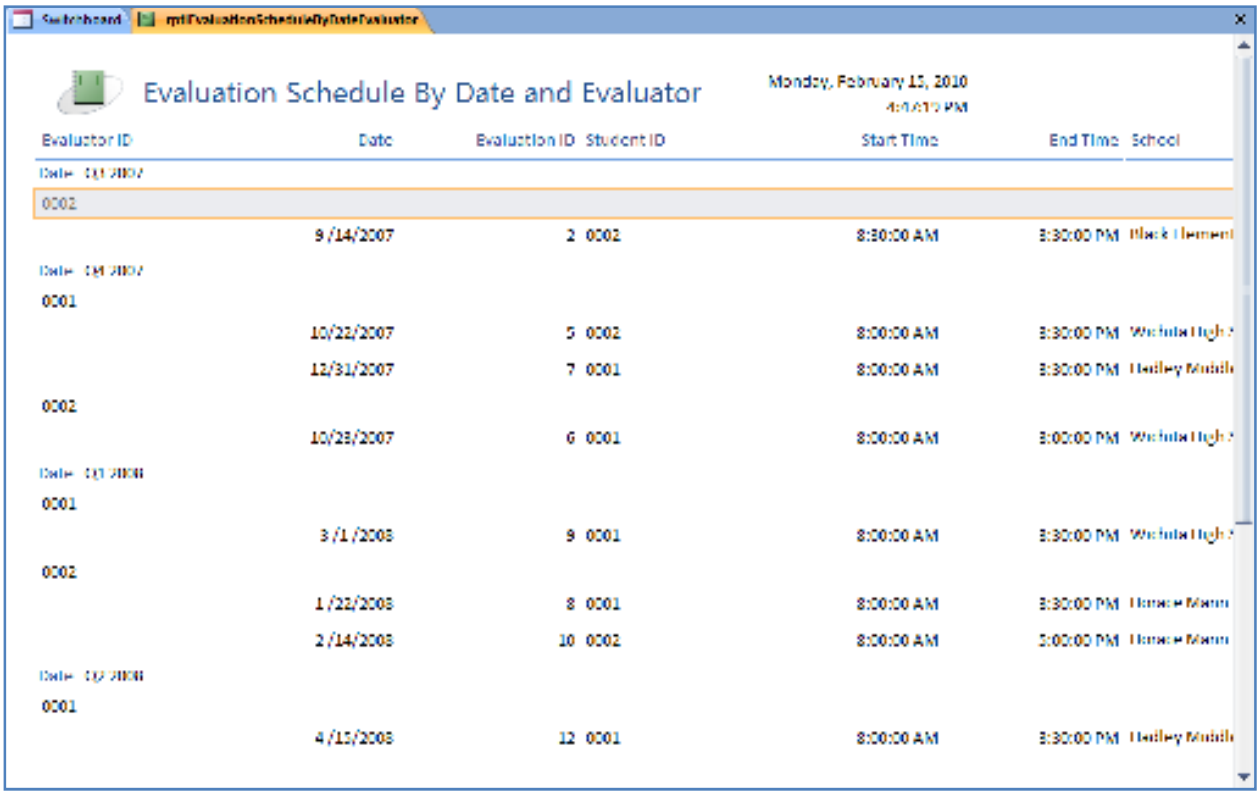

Figure 21 - Scheduled Evaluations by Evaluator

The Scheduled Evaluations by Student report lists scheduled evaluations sorted by scheduled date and by student. The system can omit scheduled evaluations that have dates prior to the date the report is run. This report has the same content and format as the Scheduled Evaluations by Evaluator report but it is sorted by date and then by student.

The Individual Student Evaluation Reports – All report lists evaluation results for all students in a specified to/from timeframe. Individual evaluation reports are sorted by student.

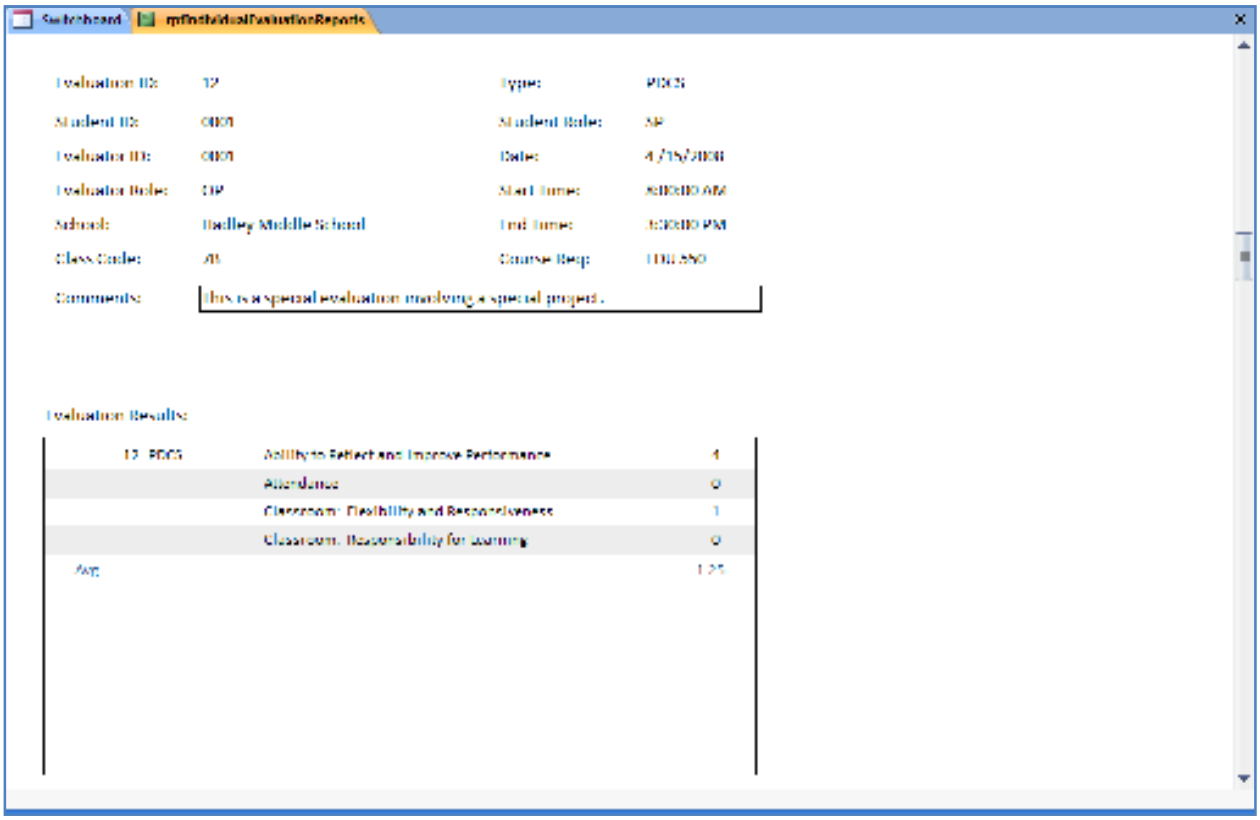

Figure 22 - Individual Student Evaluation Report

The Evaluation Criteria by Evaluation Type report lists evaluation criteria for all evaluation types. Evaluation criteria are sorted by evaluation type and criteria name. The system allows a user to select a single evaluation type and its criteria.

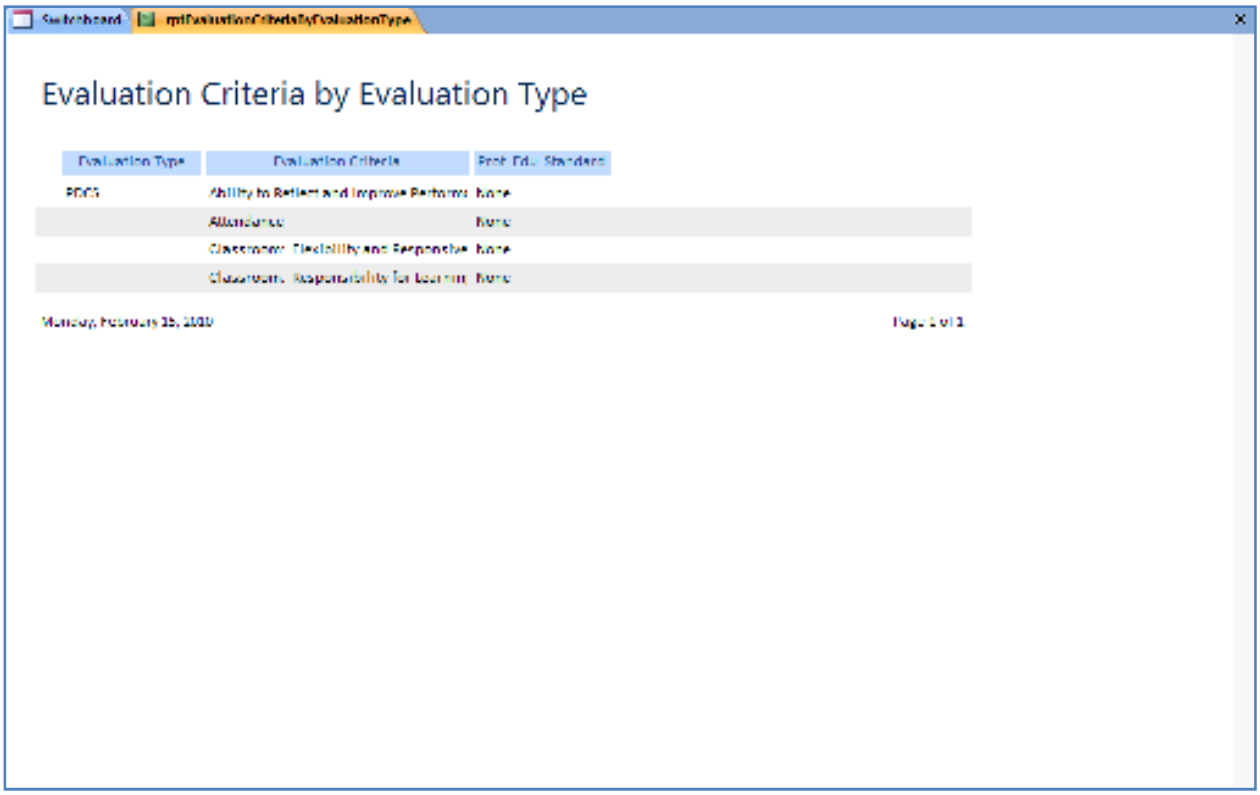

Figure 23 - Evaluation Criteria by Evaluation Type

The Scoring Criteria Descriptions report lists scoring criteria for all evaluation criteria. Scoring criteria are sorted by evaluation type, criteria name, and score.

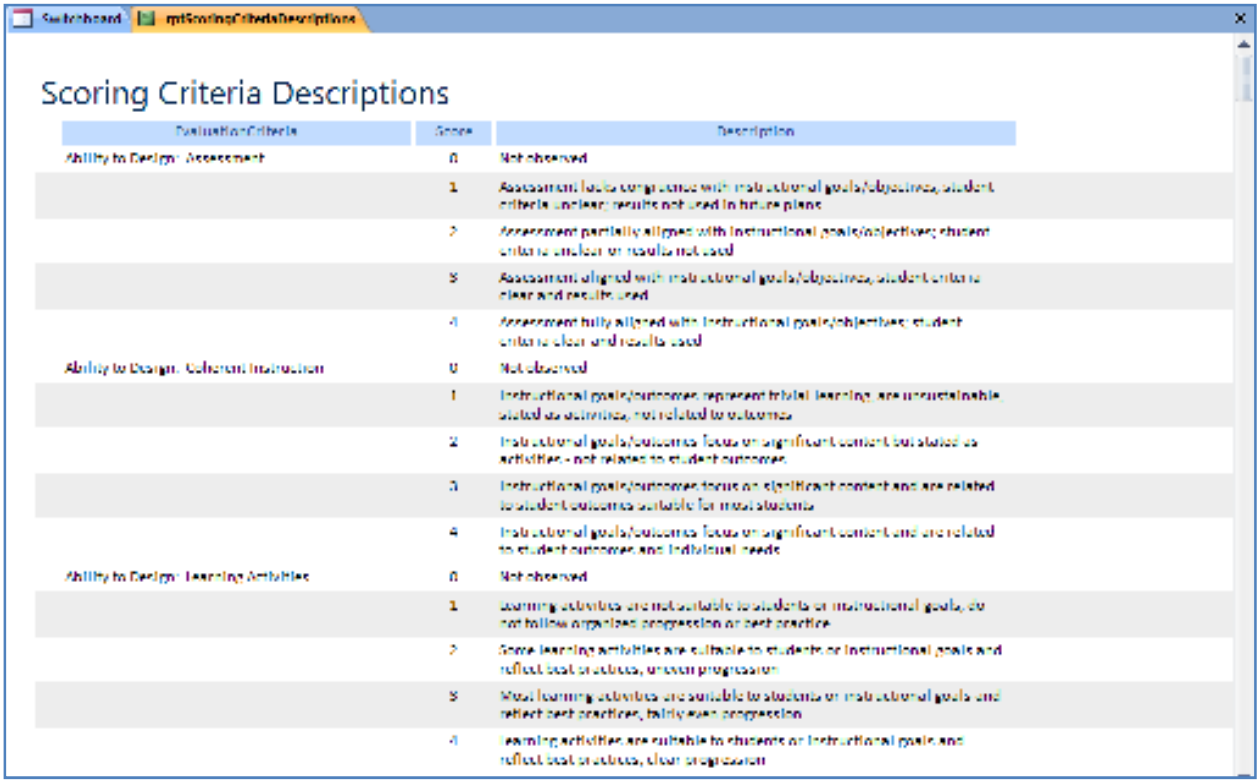

Figure 24 - Scoring Criteria Descriptions

Reports currently available in the Evaluator Reports Menu are: Evaluators List. Any of these reports can be modified or deleted and new preformatted reports can be added to this menu.

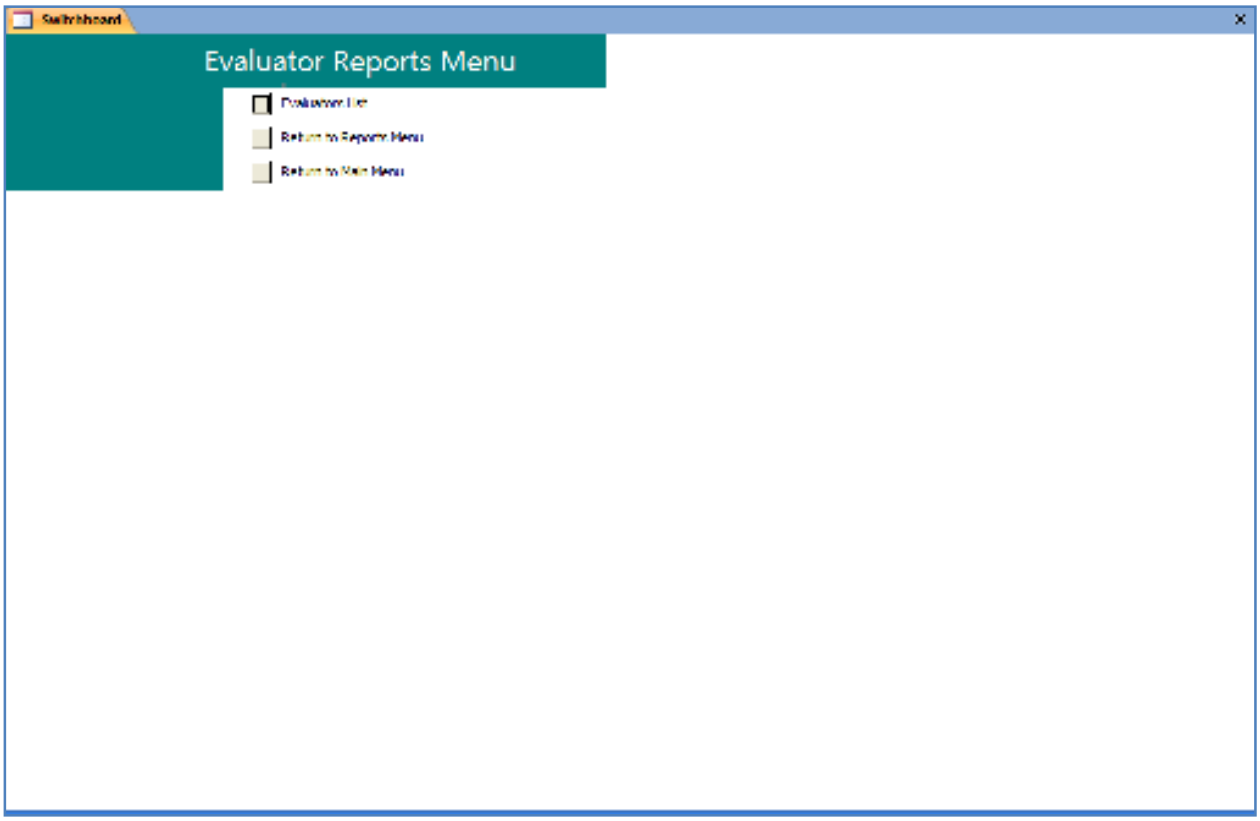

Figure 25 - Evaluator Reports Menu

The Evaluators by Name report lists evaluator information for all evaluators. Evaluator information is sorted alphabetically by evaluator name.

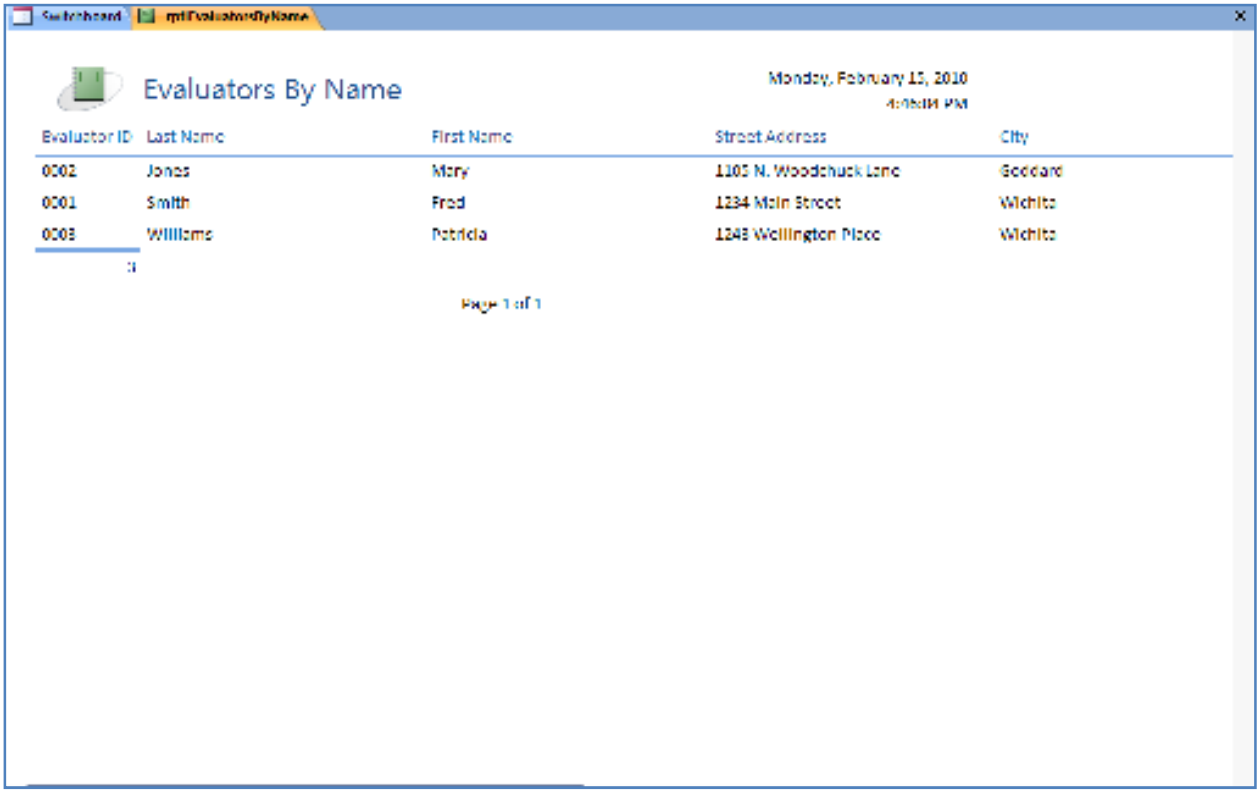

Figure 26 - Evaluators by Name

Reports currently available in the Student Reports Menu are: Students List and Students by State. Any of these reports can be modified or deleted and new preformatted reports can be added to this menu.

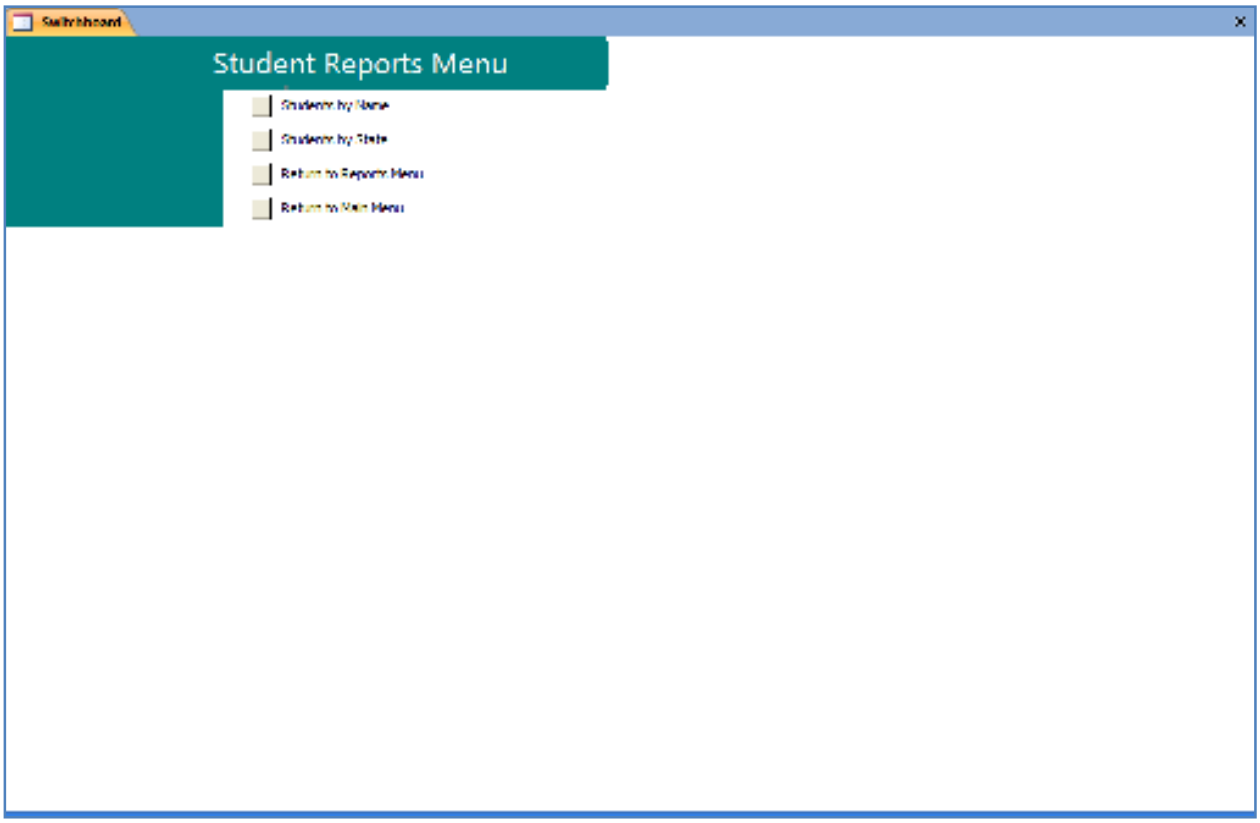

Figure 27 - Student Reports Menu

The Students List report lists student information for all pre-service teachers. Student information is sorted alphabetically by student name.

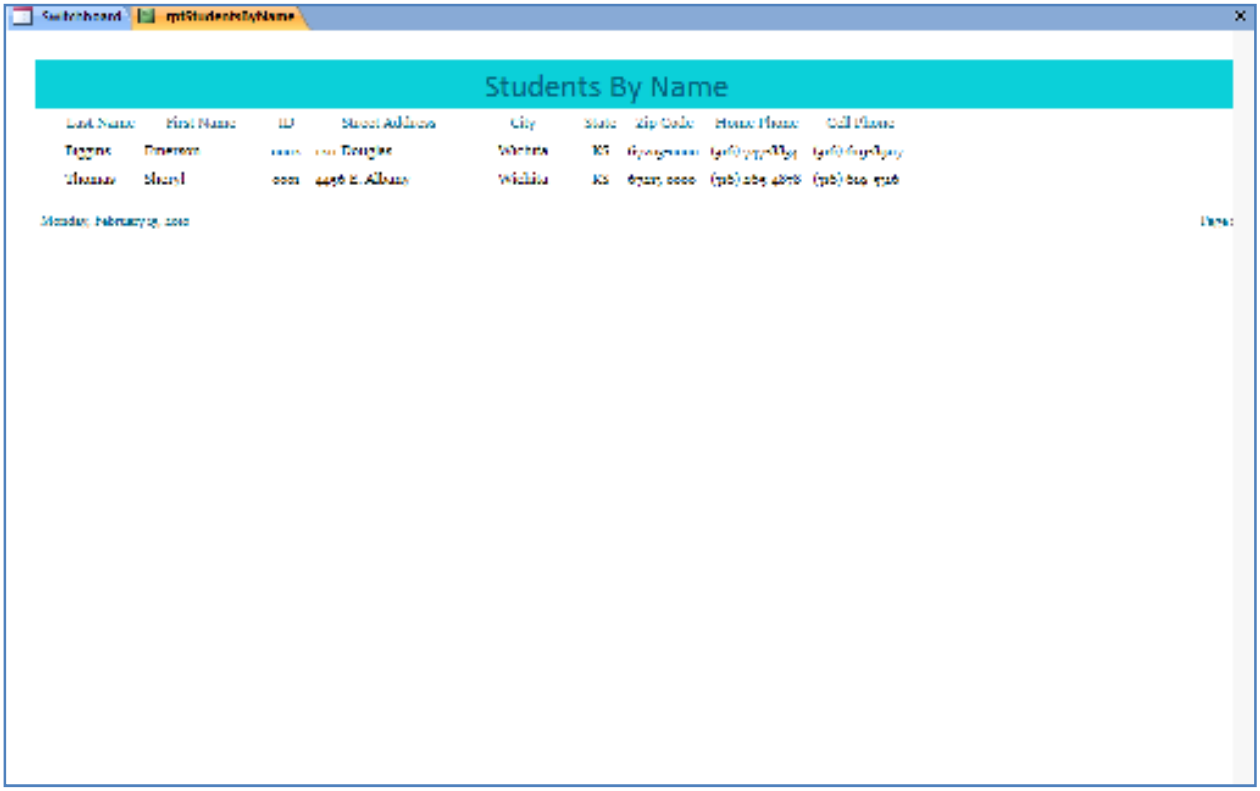

Figure 28 - Students by Name Report

The Students List report lists student information for all pre-service teachers. Student information is sorted alphabetically by student name.

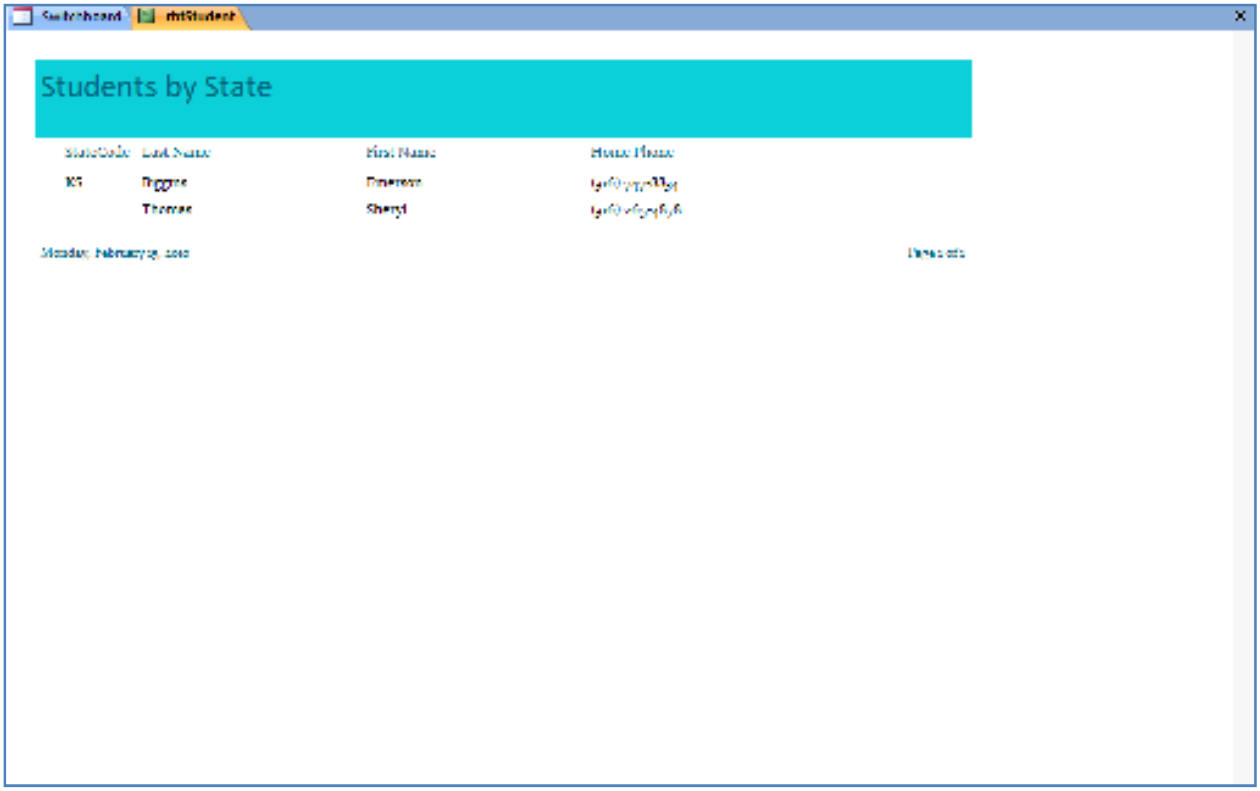

Figure 29 - Students by State Report

Reports currently available in the School Reports Menu are: Classes by School, Schools by Name, and Schools by Type by Name. Any of these reports can be modified or deleted and new preformatted reports can be added to this menu.

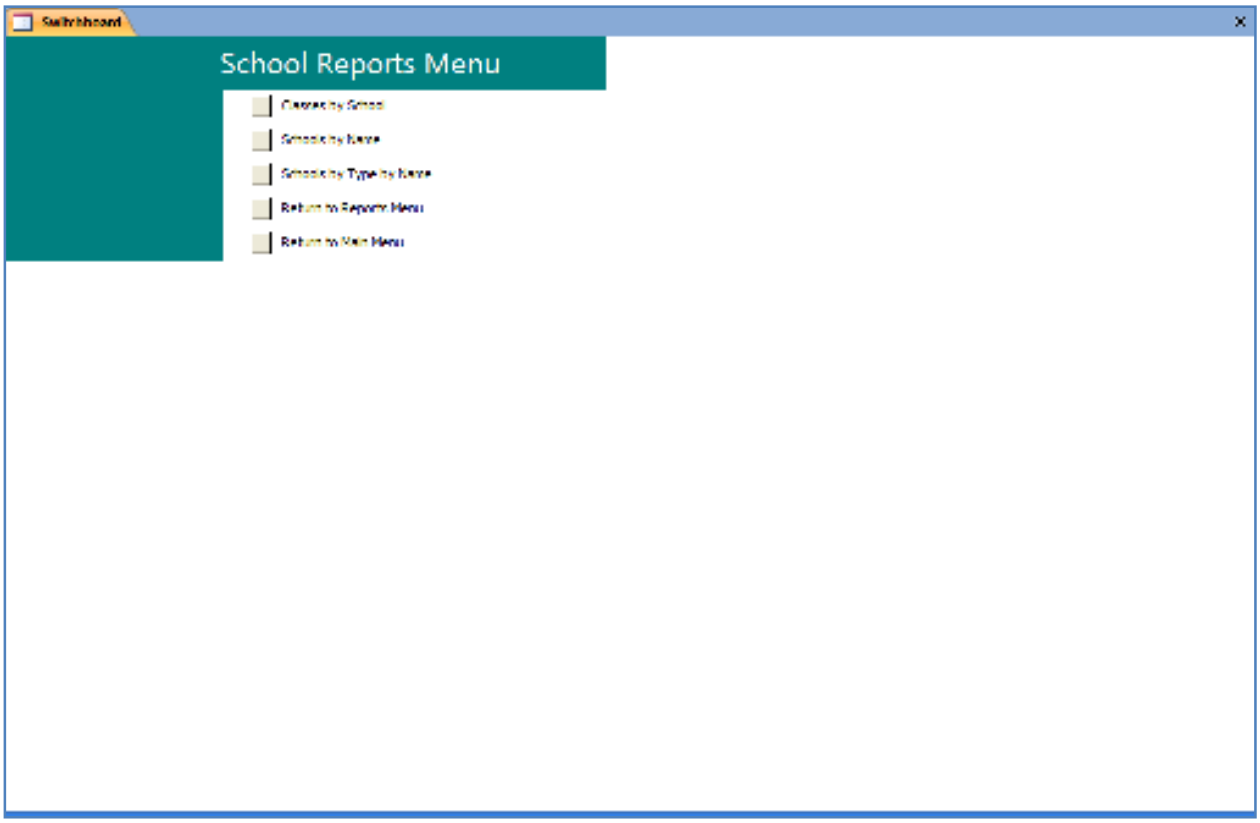

Figure 30 - School Reports Menu

The Classes by School report lists classroom information for all classrooms where pre-service teachers might be student teaching. Classroom information is sorted alphabetically by school name and by classroom code.

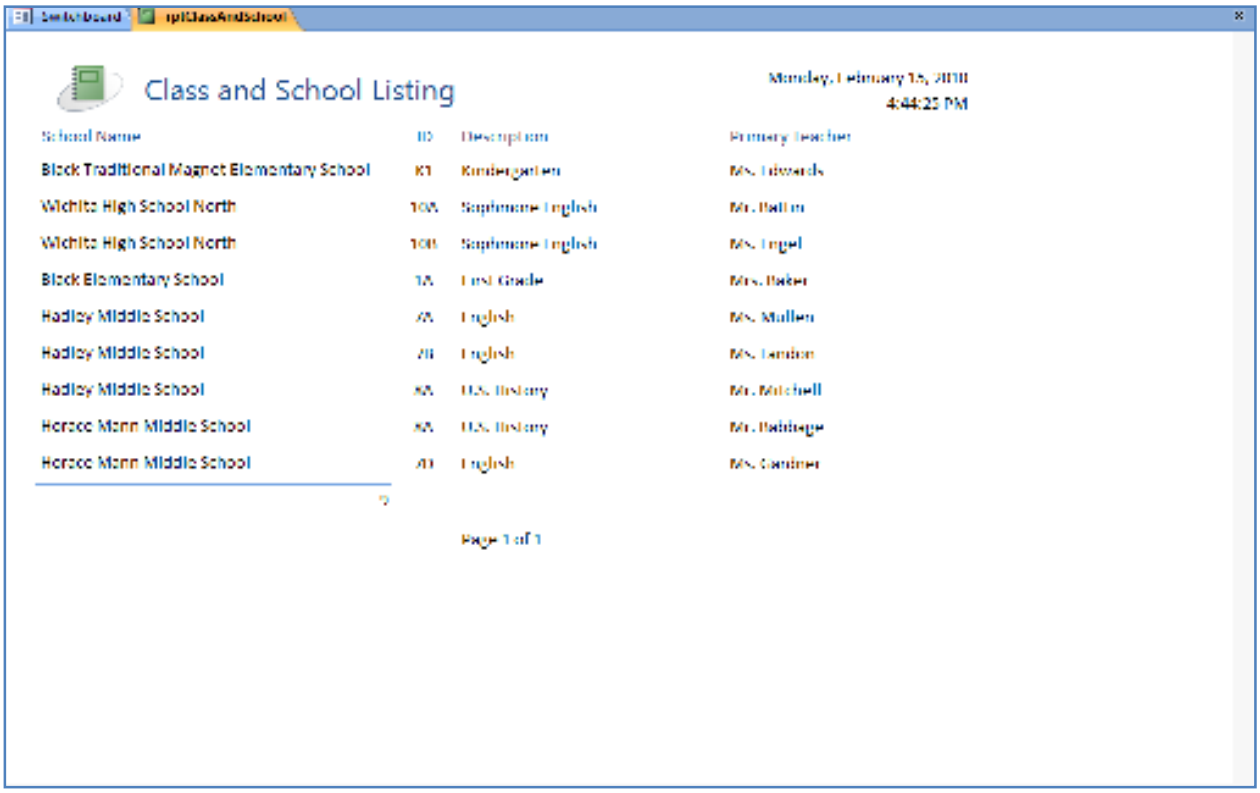

Figure 31 - Class and School Listing Report

The Schools by Name report lists school information for all schools where pre-service teachers might be student teaching. School information is sorted alphabetically by school name.

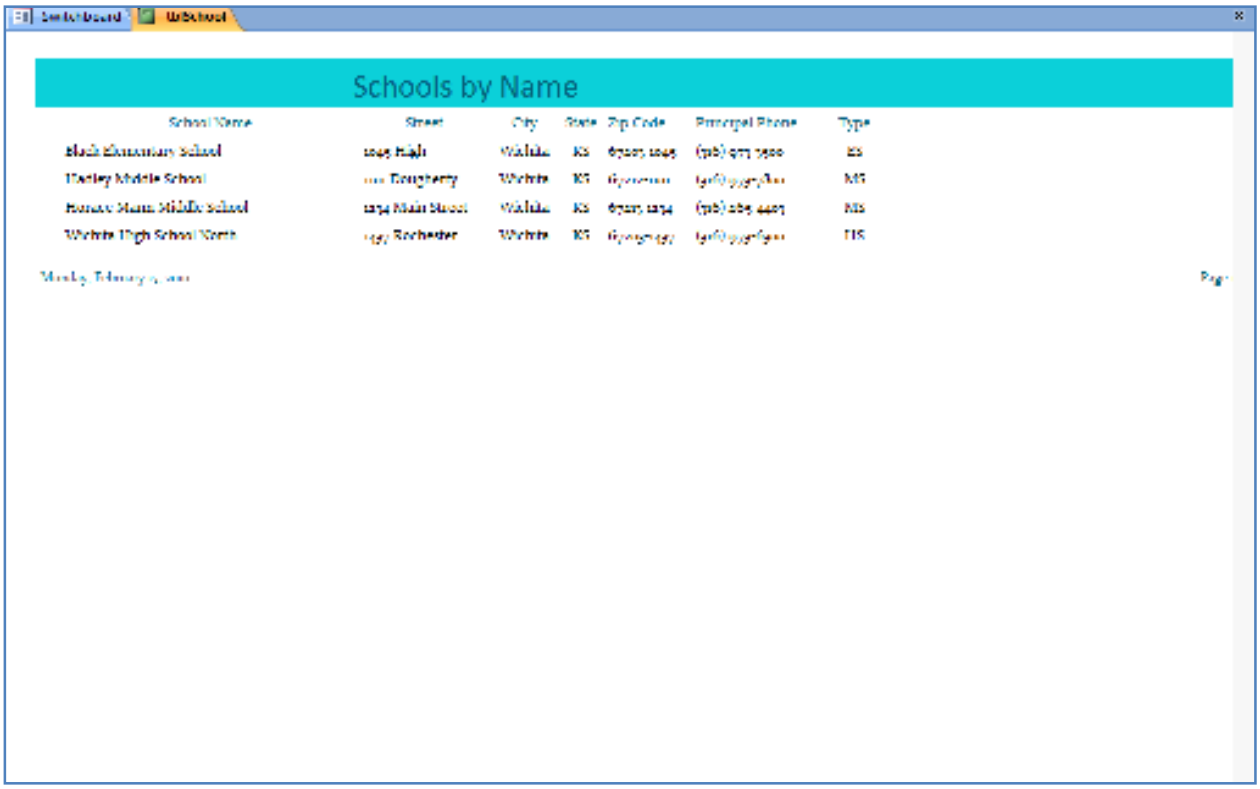

Figure 32 - Schools by Name Report

The Schools by Type by Name report lists school information for all schools where pre-service teachers might be student teaching. School information is sorted alphabetically by school type and school name.

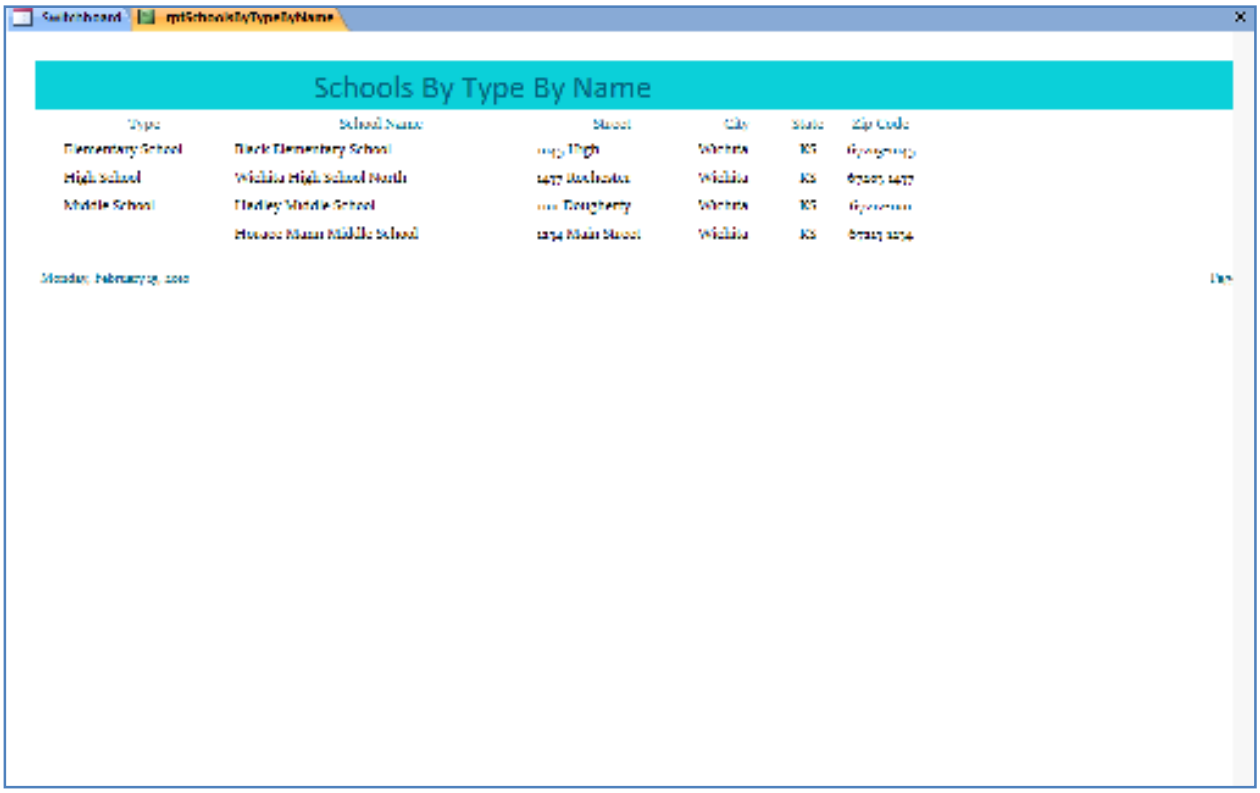

Figure 33 - School by Type by Name Report

CHAPTER 5 – DISCUSSION AND CONCLUSIONS

Needs Assessment Survey

Respondent Profile Information

Sixty-nine percent (69%) of the sixty survey respondents indicated that their primary role in pre-service teacher assessment was “Teacher Licensing Officer”. Fifteen percent (15%) of survey respondents indicated that their primary role in pre-service teacher assessment was “Supervising Professor”. Eight percent (8%) of survey respondents indicated that their primary role in pre-service teacher assessment was “NCATE Team Member”. Eight percent (8%) of survey respondents indicated that their primary role in pre-service teacher assessment included all of the response categories. Thirty-eight percent (38%) of survey respondents indicated that they had served in their primary pre-service teacher assessment role for over ten (10) years. Thirty-one percent (31%) of survey respondents indicated that they had served in their primary pre-service teacher assessment role for 7-10 years. Twenty-three percent (23%) of survey respondents indicated that they had served in their primary pre-service teacher assessment role for 4-6 years. Eight percent (8%) of survey respondents indicated that they had served in their primary pre-service teacher assessment role for 1-3 years. Forty-six percent (46%) of survey respondents indicated that they had served as a KSDE or NCATE team member. Fifty-four percent (54%) of survey respondents indicated that they had not served as a KSDE or NCATE team member.

Type of System

Thirteen out of twenty-three needs assessment surveys were returned by teacher licensing officers at NCATE affiliated teacher training institutions. This was a 57% return rate. Ninety-two percent (92%) of these institutions use internally developed custom systems. Seventeen percent (17%) of the internally developed systems were paper-based, fifty percent (50%) use electronic spreadsheets, seventeen percent (17%) use a database, and sixteen percent (16%) are web-based. Eight percent use (8%) an unmodified purchased package. One hundred percent (100%) of the purchased packages are web-based.

Meets Data Gathering and Reporting Needs

Eighty-five percent (85%) of survey respondents “agreed” that their current pre-service teacher assessment system meets institutional data gathering needs. Fifteen percent (15%) “strongly agreed” that their current pre-service teacher assessment system meets institutional data gathering needs. Eight percent (8%) of survey respondents “disagreed” that their current pre-service teacher assessment system meets institutional reporting needs. Seventy-seven percent (77%) of survey respondents “agreed” that their current pre-service teacher assessment system meets institutional reporting needs. Fifteen percent (15%) of survey respondents “ strongly agreed” that their current pre-service teacher assessment system meets institutional reporting needs. Eight percent (8%) of survey respondents “disagreed” that their current pre-service teacher assessment system meets NCATE reporting needs. Seventy-seven percent (77%) of survey respondents “agreed” that their current pre-service teacher assessment system meets institutional reporting needs. Fifteen percent

(15%) of survey respondents “strongly agreed” that their current pre-service teacher assessment system meets institutional reporting needs. Eight percent (8%) of survey respondents “had no opinion” that their current pre-service teacher assessment system meets NCATE data collection requirements. Fifteen percent (15%) of survey respondents “disagreed” that their current pre-service teacher assessment system meets NCATE data collection requirements. Thirty-one percent (31%) of survey respondents “agreed” that their current pre-service teacher assessment system meets NCATE data collection requirements. Forty-six percent (46%) of survey respondents “strongly agreed” that their current pre-service teacher assessment system meets NCATE data collection requirements.

Ease of Use

Eight percent (8%) of survey respondents “had no opinion” that their current pre-service teacher assessment system is easy to use. Twenty-three percent (23%) of survey respondents “disagreed” that their current pre-service teacher assessment system is easy to use. Sixty-nine percent (69%) of survey respondents “agreed” that their current pre-service teacher assessment system is easy to use.

Effectiveness

Twenty-three percent (23%) of survey respondents “had no opinion” that their current pre-service teacher assessment system is effective. Seventy-seven percent (77%) of survey respondents “agreed” that their current pre-service teacher assessment system is effective.

Needs Improvement

Fifteen percent (15%) of survey respondents “had no opinion” that their current pre-service teacher assessment system needs improvement. Seventy-seven percent (77%) of survey respondents “agreed” that their current pre-service teacher assessment system needs improvement. Eight percent (8%) of survey respondents “disagreed” that their current pre-service teacher assessment system needs improvement.

Affordable

Seventy-seven percent (77%) of survey respondents “agreed” that their current pre-service teacher assessment system is affordable. Twenty-three percent (23%) of survey respondents “strongly agreed” that their current pre-service teacher assessment system is affordable.

Need to Continue and Develop a System

Although one hundred (100%) of all respondents “agreed” or “strongly agreed” that their current pre-service teacher assessment systems are affordable and ninety-two percent (92%) of respondents “agreed” or “strongly agreed” that their current pre-service teacher assessment systems meet their data gathering and reporting needs, there seems to be a need to continue this research and development effort. This conclusion is based on the fact that sixty-seven percent of respondents’ systems are either spreadsheet or paper-based. Neither of these approaches can provide the same level of data collection accuracy and ease of use or provide the data filtering, sorting, and reporting capabilities provided by a database driven approach. Twenty-three percent (23%) of all respondents indicated they had “no opinion” regarding the

effectiveness of their current system and twenty-three percent (23%) of all respondents indicated that their current system was not easy to use. Ninety-two percent (92%) of all respondents felt their current systems needed improvement. Based on the significant number of systems that need improvement and are not database driven, this research and development effort should continue on to the prototype development phase.

System Usability Questionnaire

The System Usability Questionnaire was sent to twenty individuals with at least four in each of the primary assessment roles, teacher-licensing officers, past or present NCATE evaluators, and supervising professors. Each recipient received a system evaluation form and a copy of the teacher evaluation system on compact disk. Each recipient was asked to load the software on the CD and try the system with fabricated or actual data. Each recipient was asked to complete a usability questionnaire and return it to the researcher. After the first twenty questionnaires were sent and compiled, the system was revised based on written comments and numeric ratings from the respondents. After these revisions were made, the system and questionnaires were sent to another twenty reviewers. Nine respondents returned surveys from the first system usability survey. The evaluation results for the first twenty respondents were:

Table 5.1 Primary Assessment Role

Primary Assessment Role						
	Supervising Professor	**Teacher Mentor**	**Teacher Licensing Officer**	**NCATE Team Member**	**KSDE Team Member**	**Total**
Count	4	1	2	2	0	9
Percent	45%	11%	22%	22%	0%	100%

All five primary roles were listed as response options in case the respondents' roles had changed from one role to another or expanded to include multiple roles. No explicit restrictions limited a respondent to a single choice. The researcher felt that this approach would better indicate each respondent's background. In the case where multiple primary roles were indicated, results were tabulated by placing the respondent in only one category so that the sum of the numbers in each role category did not exceed the total number of respondents. Twenty-two percent (22%) of the respondents indicated that they were serving or had served in multiple primary roles.

Table 5.2 Primary Assessment Role - Number of Years

Primary Assessment Role – Number of Years						
	Less Than 1	**1-3**	**4-6**	**7-10**	**Over 10**	**Total**
Count	0	1	3	3	2	9
Percent	0%	11%	33%	33%	22%	100%

Eighty-nine percent (89%) of the respondents had four or more years experience in their primary assessment role. This is to be expected since individuals hired by teacher training institutions to supervise and mentor pre-service teachers are generally expected to have several years of classroom teaching experience. The individuals selected to be NCATE or KSDE team members generally have several years of classroom teaching experience and have additional years of experience teaching at a teacher training institution before being selected as team members. The accuracy and completeness of this profile information would have been more complete if the researcher had added additional questions asking respondents to indicate the number of years spent as a classroom teacher, the number of years spent teaching at a teacher training institution, and the number of years served in each assessment role. The

addition of these questions may have provided richer data but it may have adversely affected the response rate due to the added length of the questionnaire. It may also have shifted attention from the main purpose of the questionnaire, which was assessment of the teacher evaluation system.

Table 5.3 NCATE Accredited Institution

NCATE Accredited Institution			
	Yes	**No**	**Total**
Count	8	1	9
Percent	89%	11%	100%

This question was asked to help determine if respondents who are associated with teacher training institutions accredited by NCATE felt that the teacher evaluation system could be beneficial to the accreditation process. Responses to each system usability question were first recorded without considering whether a respondent was associated with an NCATE accredited institution or not. Then, responses were evaluated based on whether the respondent was affiliated with an NCATE accredited institution. NCATE affiliated versus non-NCATE affiliated responses are summarized in the Table 5.4 below:

Table 5.4 Served as Accrediting Team Member

Served as Accrediting Team Member			
	Yes	**No**	**Total**
Count	2	7	9
Percent	22%	78%	100%

Twenty-two percent (22%) of the respondents indicated that they had served as a NCATE team member. Seventy-eight percent (78%) of the respondents indicated that they had not served as a KSDE or NCATE team member.

Would Help Meet Institutional Data Gathering Needs

Table 5.5 Would Help Meet Institutional Data Gathering Needs

Would Help Meet Institutional Data Gathering Needs						
	Strongly Disagree	**Disagree**	**No Opinion**	**Agree**	**Strongly Agree**	**Total**
Count	0	3	1	4	1	9
Percent	0%	33%	11%	45%	11%	100%

Thirty-three percent (33%) of evaluation respondents “disagree” that the pre-service teacher assessment system would help meet institutional data gathering needs. Eleven percent (11%) of evaluation respondents had “no opinion” that the pre-service teacher assessment system would help meet institutional data gathering needs. Forty-five percent (45%) of evaluation respondents “agree” that the pre-service teacher assessment system would help meet institutional data gathering needs. Eleven percent (11%) of evaluation respondents “strongly agree” that the pre-service teacher assessment system would help meet institutional data gathering needs. Based on respondents’ written comments, the high percentage of “disagree” responses could be due in part to the respondents’ lack of understanding of the value and use of validation criteria, required fields, lookup menus, and default values to improve data validity and completeness. Based on written responses from those who “disagree”, the systems they currently use do not have required fields and do not use validation criteria to prevent invalid data entry. Based on written comments, the number of “disagree”

responses was also influenced by the fact that these respondents have adequate systems they are currently using. One respondent indicated that changing "would" to "could" in each question could have altered the responses.

Would Help Meet Institutional Reporting Needs

Table 5.6 Would Help Meet Institutional Reporting Needs

Would Help Meet Institutional Reporting Needs						
	Strongly Disagree	**Disagree**	**No Opinion**	**Agree**	**Strongly Agree**	**Total**
Count	1	4	0	4	0	9
Percent	11%	44%	0%	44%	0%	100%

Eleven percent (11%) of evaluation respondents "strongly disagree" that the pre-service teacher assessment system would help meet institutional reporting needs. Forty-four percent (44%) of evaluation respondents "disagree" that the pre-service teacher assessment system would help meet institutional reporting needs. Zero percent (0%) of evaluation respondents had "no opinion" that the pre-service teacher assessment system would help meet institutional reporting needs. Forty-four percent (44%) of evaluation respondents "agree" that the pre-service teacher assessment system would help meet institutional reporting needs. Zero percent (0%) of evaluation respondents "strongly agree" that the pre-service teacher assessment system would help meet institutional reporting needs. Respondent comments indicated that the sample data included with the test system did not match their evaluation criteria and this influenced their response to this question. This occurred in spite of the fact that respondents had been told that they could delete or change any of the pre-populated

data and that their focus should not be on evaluating the system and not on the pre-populated data and rubric content.

Easy to Use

Table 5.7 Assessment System Easy to Use

Assessment System Easy to Use						
	Strongly Disagree	**Disagree**	**No Opinion**	**Agree**	**Strongly Agree**	**Total**
Count	0	8	0	1	0	9
Percent	0%	89%	0%	11%	0%	100%

Eighty-nine percent (89%) of evaluation respondents “disagree” that the pre-service teacher assessment system was easy to use. Eleven percent (11%) of evaluation respondents “agree” that the pre-service teacher assessment system was easy to use. All other response categories had zero percent (0%). Based on respondents’ written responses, the high number of “disagree” responses was influenced by several factors: minimal user documentation, lack of pre-evaluation system training, and lack of understanding related to using required fields and validation criteria to improve data validity and completeness.

Would Make Data Collection More Effective

Table 5.8 System Makes Data Collection More Effective

Assessment System Makes Data Collection More Effective						
	Strongly Disagree	**Disagree**	**No Opinion**	**Agree**	**Strongly Agree**	**Total**
Count	1	4	0	4	0	9
Percent	11%	44%	0%	44%	0%	100%

Eleven percent (11%) of evaluation respondents “strongly disagree” that the pre-service teacher assessment system would make data collection more effective. Forty-four percent (44%) of evaluation respondents “disagree” that the pre-service teacher assessment system would make data collection more effective. Forty-four percent (44%) of evaluation respondents “agree” that the pre-service teacher assessment system would make data collection more effective. All other response categories had zero percent (0%). Based on respondents’ written comments, the polarization between negative and positive responses could have been influenced by the respondent’s lack of familiarity with systems that use default values, validation criteria, required fields, and “list boxes” to insure complete and valid data.

Would Make Data Collection More Efficient

Table 5.9 System Makes Data Collection More Efficient

Assessment System Makes Data Collection More Efficient						
	Strongly Disagree	**Disagree**	**No Opinion**	**Agree**	**Strongly Agree**	**Total**
Count	1	4	0	4	0	9
Percent	11%	44%	0%	44%	0%	100%

Eleven percent (11%) of evaluation respondents “strongly disagree” that the pre-service teacher assessment system would make data collection more efficient. Forty-four percent (44%) of evaluation respondents “disagree” that the pre-service teacher assessment system would make data collection more efficient. Forty-four percent (44%) of evaluation respondents “agree” that the pre-service teacher assessment system would make data collection more efficient. All other response categories had zero percent (0%). Based on respondents’ written comments, the polarization between negative and positive responses could have been influenced by the respondent’s lack of

familiarity with systems that use default values and “list boxes” to insure complete and valid data and reduce keystroke input.

Would Make Data Collection More Accurate

Table 5.10 System Makes Data Collection More Accurate

Assessment System Makes Data Collection More Accurate						
	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
Count	0	4	0	5	0	9
Percent	0%	44%	0%	56%	0%	100%

Forty-four percent (44%) of evaluation respondents “disagree” that the pre-service teacher assessment system would make data collection more accurate. Fifty-six percent (56%) of evaluation respondents “agree” that the pre-service teacher assessment system would make data collection more accurate. All other response categories had zero percent (0%). Based on respondents’ written comments, the polarization between negative and positive responses could have been influenced by the respondent’s lack of familiarity with systems that use default values and “list boxes” to insure complete and valid data. Some respondents commented that they did not see a need for restrictions that limited their ability to type any value into input areas in the system.

Would Help Provide More timely Feedback

Table 5.11 Would Help Provide More Timely Feedback

Assessment System Would Help Provide More Timely Feedback						
	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
Count	0	4	0	5	0	9
Percent	0%	44%	0%	56%	0%	100%

Forty-four percent (44%) of evaluation respondents “disagree” that the pre-service teacher assessment system would help provide more timely feedback to students. Fifty-six percent (56%) of evaluation respondents “agree” that the pre-service teacher assessment system would help provide more timely feedback to students. All other response categories had zero percent (0%).

Would Help Assess Pre-Service Teachers in a Meaningful Manner

Table 5.12 System Assesses in a Meaningful Manner

Assessment System Assesses in a Meaningful Manner						
	Strongly Disagree	**Disagree**	**No Opinion**	**Agree**	**Strongly Agree**	**Total**
Count	0	4	0	5	0	9
Percent	0%	44%	0%	56%	0%	100%

Forty-four percent (44%) of evaluation respondents “disagree” that the pre-service teacher assessment system would help assess pre-service teachers in a meaningful manner. Fifty-six percent (56%) of evaluation respondents “agree” that the pre-service teacher assessment system would help assess pre-service teachers in a meaningful manner. All other response categories had zero percent (0%). Even though respondents were told that the pre-populated evaluation criteria, rubrics, and types of evaluations were for demonstration purposes only and to make system evaluation easier for respondents, those who “disagree” still seemed to base their response on a comparison between the evaluation criteria, rubrics, and types of evaluations they currently use and those in the system being evaluated. The researcher felt that this data needed to be pre-populated to reduce the data input work load on respondents who evaluated the system. If this had not been done, the evaluation response rate would have been considerably lower.

System is Affordable

Table 5.13 System is Affordable

Assessment System Is Affordable						
	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
Count	0	0	8	1	0	9
Percent	0%	0%	89%	11%	0%	100%

Eighty-nine percent (89%) of evaluation respondents had “no opinion” that the pre-service teacher assessment system is affordable. Eleven percent (11%) of evaluation respondents “agree” that the pre-service teacher assessment system is affordable. All other response categories had zero percent (0%). Even though the respondents were told that the system would be available through “shareware” which offers software on a “free trial” and “suggested donation” basis, they indicated that they had no basis for assessing the system’s affordability. This could be due to the respondents’ lack of awareness or prior experience with “shareware”.

Needs Improvement

Table 5.14 System Needs Improvement

Assessment System Needs Improvement						
	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
Count	0	0	0	8	1	9
Percent	0%	0%	0%	89%	11%	100%

Eighty-nine percent (89%) of evaluation respondents “agree” that the pre-service teacher assessment system needs improvement. Eleven percent (11%) of evaluation respondents “strongly agree” that the pre-service teacher assessment system needs improvement. All other response categories had zero percent (0%). Based on numeric

responses to previous questions and written comments, this preponderance of responses indicating that the system needed improvement was anticipated.

Changes Requested After First Set of Evaluations

The changes that were suggested after the first set of system evaluations were returned focused mainly on the wording of evaluation criteria, evaluation criteria content, evaluation rubric scoring criteria, and types of evaluations performed. This is to be expected because the evaluators are educators and not system developers and their focus tends to be on evaluation content and not on system design or functionality. Evaluators who are required to critique a system naturally tend to speak about or in terms related to their core competencies even though the instruction letter stated specifically to focus on the functionality and usability of the system as a tool. Some changes were made to the sample data and evaluation content because of evaluator feedback but since the intent of this research and development effort was to develop a tool to facilitate performing evaluations and not to develop an entirely new evaluation methodology, these changes were not extensive. These changes were made to try to shift the focus away from content issues and toward system functionality and usability. The developer also rephrased the instruction letter and provided a more extensive summary of system functions to try to shift the evaluator's focus more toward functionality and usability instead of content. There were several suggestions related to system functionality, screen layout, and system operation that were made before the second set of system evaluations was distributed. The evaluation letter was changed to emphasize that the evaluation should focus on system functionality and not on the pre-

populated data. Content was added to the "quick-start" instructions to make it easier to use and evaluate the system.

System Usability Questionnaire

The second set of System Usability Questionnaires was sent to twenty individuals with at least four in each of the primary assessment roles, teacher-licensing officers, past or present NCATE evaluators, and supervising professors. Each recipient received a system evaluation form and a copy of the teacher evaluation system on compact disk. Each recipient was asked to load the software on the CD and try the system with fabricated or actual data. Each recipient was asked to complete a usability questionnaire and return it to the researcher. After the results from the second twenty questionnaires were compiled, the system was revised based on written comments and numeric ratings from the respondents. The revised system is included as the fourth chapter of this dissertation. Ten respondents returned surveys from the second Usability Questionnaire. The evaluation results for the second group of respondents were:

Table 5.15 Primary Assessment Role

Primary Assessment Role						
	Supervising Professor	**Teacher Mentor**	**Teacher Licensing Officer**	**NCATE Team Member**	**KSDE Team Member**	**Total**
Count	4	3	2	1	0	10
Percent	40%	30%	20%	10%	0%	100%

All five primary roles were listed as response options in case the respondents' roles had changed from one role to another or expanded to include multiple roles. No

explicit restrictions limited a respondent to a single choice. The researcher felt that this approach would better indicate each respondent's background. In the case where multiple primary roles were indicated, results were tabulated by placing the respondent in only one category so that the sum of the numbers in each role category did not exceed the total number of respondents. Thirty percent (30%) of the respondents indicated that they were serving or had served in multiple primary roles.

Table 5.16 Primary Assessment Role - Number of Years

Primary Assessment Role – Number of Years						
	Less Than 1	**1-3**	**4-6**	**7-10**	**Over 10**	**Total**
Count	0	0	4	3	3	10
Percent	0%	0%	33%	33%	22%	100%

One hundred percent (100%) of the respondents had four or more years experience in their primary assessment role. This is to be expected since individuals hired by teacher training institutions to supervise and mentor pre-service teachers are generally expected to have several years of classroom teaching experience. Individuals selected to be NCATE or KSDE team members generally have several years of classroom teaching experience and have additional years of experience teaching at a teacher training institution before being selected as team members.

Table 5.17 NCATE Accredited Institution

NCATE Accredited Institution			
	Yes	**No**	**Total**
Count	9	1	10
Percent	90%	10%	100%

This question was asked to help determine if respondents who are associated with teacher training institutions accredited by NCATE felt that the teacher evaluation system could be beneficial to the accreditation process. Responses to each system usability question were first recorded without considering whether a respondent was associated with an NCATE accredited institution or not. Then, responses were evaluated based on whether the respondent was affiliated with an NCATE accredited institution. NCATE affiliated versus non-NCATE affiliated responses are summarized in the Table 5.18 below:

Table 5.18 Served as Accrediting Team Member

Served as Accrediting Team Member			
	Yes	**No**	**Total**
Count	1	9	10
Percent	10%	90%	100%

Ten percent (10%) of the respondents indicated that they had served as a NCATE team member. Ninety percent (90%) of the respondents indicated that they had not served as a KSDE or NCATE team member.

Could Help Meet Institutional Data Gathering Needs

Table 5.19 Could Help Meet Institutional Data Gathering Needs

Could Help Meet Institutional Data Gathering Needs						
	Strongly Disagree	**Disagree**	**No Opinion**	**Agree**	**Strongly Agree**	**Total**
Count	0	2	0	8	0	10
Percent	0%	20%	0%	80%	0%	100%

Twenty percent (20%) of evaluation respondents “disagree” that the pre-service teacher assessment system would help meet institutional data gathering needs. Eighty

percent (80%) of evaluation respondents “agree” that the pre-service teacher assessment system could help meet institutional data gathering needs. All other response categories had zero percent (0%).Based on respondents’ written comments, the percentage of “disagree” responses could be due in part to the respondents’ lack of understanding of the value and use of validation criteria, required fields, lookup menus, and default values to improve data validity and completeness. Based on written responses from those who “disagree”, respondents also seemed to be influenced by the fact that these respondents have adequate systems they are currently using. The researcher probably should have asked some of the same questions used in the Needs Assessment to determine if respondents were currently using an evaluation system that meets their needs. It might also have been prudent to ask if the system that respondents use is a database. The increased number of “agree” responses may have been influenced by the change from “would” to “could” in each question. Based on written respondent comments, it could also have been influenced by the respondents’ familiarity with database driven systems that use menus, validation criteria, required fields, and “drop down” lists.

Could Help Meet Institutional Reporting Needs

Table 5.20 Could Help Meet Institutional Reporting Needs

Could Help Meet Institutional Reporting Needs						
	Strongly Disagree	**Disagree**	**No Opinion**	**Agree**	**Strongly Agree**	**Total**
Count	0	2	0	8	0	10
Percent	0%	20%	0%	80%	0%	100%

Twenty percent (20%) of evaluation respondents “disagree” that the pre-service teacher assessment system would help meet institutional reporting needs. These respondents’ comments indicated that the sample reports included with the system did not match reporting needs and that this influenced their response to this question. Eighty percent (80%) of evaluation respondents “agree” that the pre-service teacher assessment system could help meet institutional reporting needs but several also stated that additional reports were needed to meet all of their needs. All other response categories had zero percent (0%). Reports included in the system sent to respondents were not intended to be all-inclusive. They were intended to provide examples of what could be done and to eliminate the need for respondents to build reports. Building reports is easy but does take a minimum amount of training to use the report wizard.

Easy to Use

Table 5.21 Assessment System is Easy to Use

Assessment System is Easy to Use						
	Strongly Disagree	**Disagree**	**No Opinion**	**Agree**	**Strongly Agree**	**Total**
Count	0	4	0	5	1	10
Percent	0%	40%	0%	50%	10%	100%

Forty percent (40%) of evaluation respondents “disagree” that the pre-service teacher assessment system was easy to use. Fifty percent (50%) of evaluation respondents “agree” that the pre-service teacher assessment system was easy to use. Ten percent (10%) of evaluation respondents “strongly agree” that the pre-service teacher assessment system was easy to use. All other response categories had zero percent (0%). Based on respondents’ written responses, the increased number of “agree” responses could have been influenced by several factors: additional

instructions in the “quick start” guide on how to use the system; a more detailed explanation of the system’s purpose; the addition of a brief explanation of the benefits of required fields and data validation, indicating required input fields; changes in menu item names; or an increased number of respondents with prior Microsoft Access experience. It might have been prudent to ask if respondents had prior Access experience.

Could Make Data Collection More Effective

Table 5.22 System Could Make Data Collection More Effective

Assessment System Could Make Data Collection More Effective						
	Strongly Disagree	**Disagree**	**No Opinion**	**Agree**	**Strongly Agree**	**Total**
Count	0	4	0	6	0	10
Percent	0%	40%	0%	60%	0%	100%

Forty percent (40%) of evaluation respondents “disagree” that the pre-service teacher assessment system would make data collection more effective. Sixty percent (60%) of evaluation respondents “agree” that the pre-service teacher assessment system would make data collection more effective. All other response categories had zero percent (0%). Based on respondents’ written comments, the polarization between “disagree” and “agree” responses could have been influenced by the respondent’s satisfaction with their current system and “not seeing a need to change” or their unwillingness to change.

Could Make Data Collection More Efficient

Table 5.23 System Could Make Data Collection More Efficient

Assessment System Could Make Data Collection More Efficient						
	Strongly		**No**		**Strongly**	**Total**

	Disagree	Disagree	Opinion	Agree	Agree	
Count	0	5	0	5	0	10
Percent	0%	50%	0%	50%	0%	100%

Fifty percent (50%) of evaluation respondents "disagree" that the pre-service teacher assessment system could make data collection more efficient. Fifty percent (50%) of evaluation respondents "agree" that the pre-service teacher assessment system could make data collection more efficient. All other response categories had zero percent (0%). Based on respondents' written comments, the polarization between "disagree" and "agree" responses could have been influenced by the respondent's satisfaction with their current system and "not seeing a need to change" or their unwillingness to change. It may also have been influenced by the respondents' perception that their current system was easier to use and therefore more efficient than the system being evaluated. Individuals tend to new systems in relation to the first system learned. It could also have been influenced by the lack of experience with Microsoft Access.

Could Make Data Collection More Accurate

Table 5.24 System Could Make Data Collection More Accurate

Assessment System Could Make Data Collection More Accurate						
	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
Count	0	4	0	5	1	10
Percent	0%	40%	0%	50%	10%	100%

Forty percent (40%) of evaluation respondents "disagree" that the pre-service teacher assessment system would make data collection more accurate. Fifty percent (50%) of evaluation respondents "agree" that the pre-service teacher assessment system would make data collection more accurate. Ten percent (10%) of evaluation

respondents “strongly agree” that the pre-service teacher assessment system would make data collection more accurate. All other response categories had zero percent (0%). Based on respondents’ written comments, the polarization between “disagree” and “agree” responses could have been influenced by the respondent’s lack of familiarity with systems that use default values and “list boxes” to insure complete and valid data. Some respondents commented that they did not see a need for restrictions that limited their ability to type any value into input areas in the system.

Could Help Provide More Timely Feedback

Table 5.25 Could Help Provide More Timely Feedback

Assessment System Could Help Provide More Timely Feedback						
	Strongly Disagree	**Disagree**	**No Opinion**	**Agree**	**Strongly Agree**	**Total**
Count	0	4	0	5	1	10
Percent	0%	40%	0%	50%	10%	100%

Forty percent (40%) of evaluation respondents “disagree” that the pre-service teacher assessment system would help provide more timely feedback to students. Fifty percent (50%) of evaluation respondents “agree” that the pre-service teacher assessment system would help provide more timely feedback to students. Ten percent (10%) of evaluation respondents “strongly agree” that the pre-service teacher assessment system would help provide more timely feedback to students. All other response categories had zero percent (0%). “Timely” is a general concept and unique to the background and expectations of each reviewer. It may have been better to quantify ”timely” in terms of specific time increments or ask how the system being

evaluated compares to the system a reviewer currently uses in terms of time it takes to provide students with feedback.

Would Help Assess Pre-Service Teachers in a Meaningful Manner

Table 5.26 System Assesses in a Meaningful Manner

Assessment System Assesses in a Meaningful Manner						
	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
Count	0	5	0	5	0	10
Percent	0%	50%	0%	50%	0%	100%

Fifty percent (50%) of evaluation respondents “disagree” that the pre-service teacher assessment system would help assess pre-service teachers in a meaningful manner. Fifty percent (50%) of evaluation respondents “agree” that the pre-service teacher assessment system would help assess pre-service teachers in a meaningful manner. All other response categories had zero percent (0%). Even though respondents were told that the pre-populated evaluation criteria, rubrics, and types of evaluations were for demonstration purposes only and to make system evaluation easier for respondents, those who “disagree” still seemed to base their responses on a comparison between the evaluation criteria, rubrics, and types of evaluations currently used and those in the system being evaluated. The researcher felt that this data needed to be pre-populated to reduce the data input work load on respondents who evaluated the system. If this had not been done, the evaluation response rate would have been considerably lower due to the increased respondent workload.

System is Affordable

Table 5.27 System is Affordable

Assessment System Is Affordable						
	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	Total
Count	0	0	0	9	1	10
Percent	0%	0%	0%	90%	10%	100%

Ninety percent (90%) of evaluation respondents “agree” that the pre-service teacher assessment system is affordable. Ten percent (10%) of evaluation respondents “strongly agree” that the pre-service teacher assessment system is affordable. All other response categories had zero percent (0%). The dramatic increase in “agree” and “strongly agree” responses could have been influenced by the inclusion of a general cost associated with using “shareware” software and a description of how “shareware” works that was not included in the first set of evaluation instructions. The first set only indicated that the system could be maintained by the institution without professional programming assistance.

Needs Improvement

Table 5.28 System Needs Improvement

Assessment System Needs Improvement						
	Strongly Disagree	**Disagree**	**No Opinion**	**Agree**	**Strongly Agree**	**Total**
Count	0	5	0	5	0	10
Percent	0%	50%	0%	50%	0%	100%

Fifty percent (50%) of evaluation respondents “disagree” that the pre-service teacher assessment system needs improvement. Fifty percent (50%) of evaluation respondents “agree” that the pre-service teacher assessment system needs improvement. This polarization as indicated by respondents’ written responses seemed to be influenced by each respondent’s satisfaction with their current system, their prior experience with a database system, and opinions regarding rubric and evaluation criteria. It had been the developer’s goal for respondents to focus on the functionality of the tool and its usefulness and not on the specific evaluation content. The focus on

evaluation criteria could not be avoided if the ease of evaluation for respondents and respondent workload were to be reduced by using pre-populated data, rubrics, and criteria.

Changes Requested After Second Set of Evaluations

The changes that were suggested after the first set of system evaluations were:

1. Make the system available via the Internet.
2. Use C# .Net, VB .Net, or Java, ASP (Active Server Pages), and SQL (Structures Query Language) instead of Microsoft Access 2007.
3. Eliminate required fields and validation criteria.
4. Make the system available in Microsoft Access 2003 and 2007.
5. Change the rubric and evaluation criteria content in the system.
6. Provide a more detailed user's manual with screen shots.

Items 1 and 2 may be done in the future but not as part of this dissertation. Item 3 will never be done because it violates the principles of good system design and would produce inaccurate and inconsistent data and incomplete records. Microsoft 2003 will soon be unsupported so this will not be done. The user can delete or change any of the rubrics or evaluation criteria so this will not be done. A detailed, online, user's manual will be done if the system is rewritten in C# .Net, ASP (Active Server Pages), and SQL (Structured Query Language) after this dissertation is completed.

Discussion

The purpose of this research and development study was to design and develop an affordable, computer-based, pre-service teacher assessment system that would allow teacher education institutions and supervising teachers to efficiently: enter

evaluation criteria; schedule evaluations; record pre-service teacher evaluations; and generate evaluation reports. The system was designed to support pre-service teacher evaluators and to support the data collection, evaluation, and reporting needs of pre-service teacher training institutions. A modified ten-phase development approach (Borg and Gall, 1989) was used to develop the system. Using this approach, the researcher successfully developed the system described in Chapter 4.

Literature Review

A literature review was used to discover how pre-service teacher evaluation systems are used; what features they provide; how affordable they are; what improvements are needed; and what evaluation criteria they use. The literature review also helped determine the functional requirements for the system the researcher developed in terms of features, capabilities, ease of use, and evaluation criteria to include.

Needs Assessment

A needs assessment was used to determine the need for the system and to define the system prototype's functional requirements. The needs assessment indicated there was a need for a more affordable, easy to use pre-service teacher evaluation system that could be maintained by personnel at the teacher education institution

Prototype Development

The researcher used Microsoft (MS) Access 2003 to develop the initial prototype. When Microsoft Access 2007 was released, the researcher converted the system to take advantage of additional features this version provides. The MS 2007 prototype

was used in both “expert’s evaluation” phases of the research and development process.

Field Tests and Refinements

Three separate evaluator groups consisting of twenty teacher-licensing officers, past or present NCATE evaluators, or supervising professors reviewed the system during development. Teacher licensing officers from the Regents Universities in Kansas participated in the needs assessment phase of the study. Past and present National Council for Accreditation of Teacher Education (NCATE) evaluation team members served as expert evaluators who provided feedback regarding the validity and functionality of the system prototype. Supervising professors from Regents University colleges of education and from private universities represented the target users and provided feedback regarding the validity, user friendliness, and usefulness of the system. After each set of evaluations, survey feedback was reviewed and the prototype was improved before conducting the next survey. Refinements made after each field test are described at the end of each section that summarizes and evaluates System Usability questionnaire responses. These responses are summarized at the start of Chapter 5.

Disseminate Product

A modified ten-phase development approach (Borg &Gall, 1989) was used to develop the system because the product will not be disseminated. After the conclusion of this research and development project, the researcher plans to develop a web-based version of the pre-service teacher evaluation system using Microsoft’s C# .Net programming language, Structured Query Language (SQL), Dynamic Hypertext Markup

Language (DHTML), Cascading Style Sheets (CSS), and Active Server Pages. This will provide a more robust web-based application. Ideally, the system will be accessible using Wi-Fi enabled tablet computers and smart phones. The added portability will make it easier for pre-service teacher evaluators to perform assessments in the field and provide faster feedback to pre-service teachers. It will also enable evaluators to access past assessment data and the evaluation schedule during on-site evaluations.

Conclusions

An analysis of the data reported in this study suggested the following conclusions regarding the research question.

- It was possible to design and develop an affordable, computer-based, pre-service teacher assessment system that would allow teacher education institutions and supervising teachers to efficiently: enter evaluation criteria; schedule evaluations; record pre-service teacher evaluations; and generate evaluation reports.
- The prototype developed was determined to be affordable because:
    - it can be maintained by non-technical personnel at teacher training institutions
    - it was developed using Microsoft Access 2007 which can be purchased at deep discounts by education al institutions. Even at full retail cost it is far less expensive than commercial teacher assessment software packages.
    - its use does not require costly annual software maintenance contracts

  - it does not require highly trained information technology professional to maintain the system.
  - system changes can be made by non-technical personnel within the teacher training institution.
- Evaluators in each survey responded favorably to the system prototype and considered its features adequate.
- Evaluators viewed the system as affordable.
- Most evaluators viewed the system as relatively easy to use.
- Evaluators saw the potential of using the system to record evaluation data efficiently and accurately.
- Evaluators saw the potential benefits of using the system's sorting, filtering, querying, and reporting capabilities to generate internal and external pre-service teacher evaluation reports.

Future Research and Development

The researcher observed several things during the research and development process that may be useful to others who may do similar research and development. The observations are:

1. Pre-populated data reduces evaluator workload and shifts focus from data entry to using and evaluating the system as a tool.
2. Face-to-face evaluator training would have made evaluation easier but it is not always practical due to time, travel, and expense.
3. More extensive evaluation instructions improve evaluation quality but reduce response rates.

4. Instead of depending entirely on the computer skills of the person evaluating the proposed system, it might be more desirable to provide evaluators with an automated demonstration that uses pre-recorded software scenarios that show how the system operates and what it can do.

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APPENDIX A – INFORMED CONSENT FORM

PROJECT TITLE: Technology Enhanced Teacher Evaluation

APPROVAL DATE OF PROJECT: 5/10/2006 **EXPIRATION DATE OF PROJECT:** 5/10/2007

PRINCIPAL INVESTIGATOR: Dr. Tweed Ross **CO-INVESTIGATOR:** Richard B. Teter

CONTACT/PHONE INFORMATION FOR ANY PROBLEMS/QUESTIONS: Dr. Tweed Ross, Assistant Professor/Director of Educational Technology, 016 Bluemont Hall, Kansas State University, Manhattan, KS 66506, twross@ksu.edu. Richard B. Teter, Friends University, 2100 W. University Street, Wichita, KS 67213, (316) 295-5899, rteter@friends.edu.

IRB CHAIR CONTACT/PHONE INFORMATION: Rick Scheid, Committee on Research Involving Human Subjects, 1 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.

SPONSOR OF PROJECT: Dr. Tweed Ross

PURPOSE OF THE RESEARCH: To determine the need for and to develop a computer-based teacher evaluation database and reporting system which will allow supervising teachers to perform and record teacher evaluations onsite in a timely manner using mobile data collection technology.

PROCEDURES OR METHODS TO BE USED: Participants who will not be paid or video taped will be asked to complete a needs assessment questionnaire to determine if there is a need to develop a computer-based teacher assessment tool that can be used to collect assessment data and generate assessment reports. Participants will also be asked to evaluate the assessment tool prototype and help refine it by providing written and verbal comments regarding the tool's usefulness, features, and ease of use. Participants may be observed by the researcher/developer while they are using the assessment tool prototype so that any questions about the tool can be answered and to determine how easy it is fro them to learn to use the tool.

LENGTH OF STUDY: May 2006 – May 2007. Participants will only be asked to review the assessment tool prototype and provide feedback periodically during this timeframe.

RISKS AND DISCOMFORTS ANTICIPATED: There are no anticipated risks or discomforts associated with this research and development project.

BENEFITS ANTICIPATED: The anticipated benefits of this research and development project are:

Teacher evaluations will be easier to record in the field.
Data collection will be more accurate and efficient.
Richer data analysis and reporting will be possible.

EXTENT OF CONFIDENTIALITY: All surveys, data, and participant feedback will be recorded in manner that will not directly identify the participant. Participants will not be identified by name or in a manner that would allow them to be identified by name in any published documents produced during this research and development project.

TERMS OF PARTICIPATION:

I understand that this project is research, and that my participation is entirely voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled.

I verify that my signature below indicates that I have read and understand this consent form, and willingly agree to participate in this study under the terms described, and that my signature acknowledges that I have received a signed and dated copy of this consent form.

Participant Name: _____

Participant Signature: _____
Date: _____

APPENDIX B – NEEDS ASSESSMENT SURVEY

RESPONDENT INFORMATION

Your response to the following questions will provide necessary respondent profile information and help determine if a database driven, pre-service teacher assessment and reporting system needs to be developed.

Please circle the response that best reflects your opinion regarding the following questions.

RESPONDENT PROFILE INFORMATION

1. My primary role in pre-service teacher assessment is:

Supervising Professor	Teacher Mentor	Teacher Licensing Officer	NCATE Team Member	KSDE Team Member

2. Number of years you have served in your primary assessment role:

Less Than 1	1-3	4-6	7-10	Over 10

3. My institution is accredited through NCATE.

Yes No

ASSESSMENT SYSTEM INFORMATION

The pre-service teacher assessment system my institution uses is:

Paper Based	Electronic Uses Spreadsheet	Electronic Uses Database	Electronic Web-Based

The pre-service teacher assessment system that my institution uses meets institutional data gathering needs.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

ASSESSMENT SYSTEM INFORMATION

The pre-service teacher assessment system that my institution uses meets institutional reporting needs.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

The pre-service teacher assessment system that my institution uses is easy to use.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

The pre-service teacher assessment system that my institution uses is efficient.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

The pre-service teacher assessment system that my institution uses needs improvement.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

The pre-service teacher assessment system that my institution uses meets NCATE data collection requirements.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

The pre-service teacher assessment system that my institution uses is scaleable.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

The pre-service teacher assessment system that my institution uses is affordable.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

The pre-service teacher assessment system that my institution uses is a(n):

ASSESSMENT SYSTEM INFORMATION

Unmodified Purchased Package	Modified Purchased Package	Internally Developed Custom System	Externally Developed Custom System	Other (Please specify below.)

Is there any other assessment system information that should be included? If so, please list any additional information below.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

APPENDIX C – SYSTEM USABILITY QUESTIONNAIRE

RESPONDENT INSTRUCTIONS

Your response to the following questions will provide necessary respondent profile information and help determine if the database driven, pre-service teacher assessment and reporting system is user-friendly and meets functional requirements. Please write any comments regarding system improvements in the space provided at the end of the survey or attach additional comments on a separate sheet of paper.

Please circle the response that best reflects your opinion for each of the following questions.

RESPONDENT PROFILE INFORMATION

1. My primary role in pre-service teacher assessment is:

Supervising Professor	Teacher Mentor	Teacher Licensing Officer	NCATE Team Member	KSDE Team Member

2. Number of years you have served in your primary assessment role:

Less Than 1	1-3	4-6	7-10	Over 10

3. My institution is accredited through NCATE.

Yes No

4. I have served as a member of a KSDE or NCATE accrediting team...

Yes No

ASSESSMENT SYSTEM EVALUATION RESPONSES

This pre-service teacher assessment system could help meet my institutional data gathering needs.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

ASSESSMENT SYSTEM EVALUATION RESPONSES

This pre-service teacher assessment system could help meet my institutional reporting needs.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

This pre-service teacher assessment system is easy to use.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

This pre-service teacher assessment system could make data collection more effective.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

This pre-service teacher assessment system could make data collection more efficient.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

This pre-service teacher assessment system could make data collection more accurate.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

This pre-service teacher assessment system could help meet NCATE data collection requirements.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

This pre-service teacher assessment system could help assess pre-service teachers in a meaningful manner.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

ASSESSMENT SYSTEM EVALUATION RESPONSES

This pre-service teacher assessment system is affordable.

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree

This pre-service teacher assessment system needs improvement.

Unmodified Purchased Package	Modified Purchased Package	Internally Developed Custom System	Externally Developed Custom System	Other (Please specify below.)

Is there any other assessment system feedback that should be included? If so, please list any additional comments below.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

APPENDIX D – INSTITUTIONS SURVEYED

Teacher licensing officers, past and present NCATE evaluation team members, and supervising professors from the following teacher training institutions received needs assessment and prototype review surveys used in this research and development study:

Baker University

Benedictine College

Bethany College

Bethel College

Emporia State University

Fort Hays State University

Friends University

Kansas State University

Kansas Wesleyan University

Mid-America Nazarene University

Newman University

Ottawa University

Pittsburg State University

Southwestern University

Sterling College

University of Kansas

University of St. Mary

Washburn University

Wichita State University