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ABSTRACT

Within the current climate of accountability to the public and government sectors, universities must provide clear, compelling evidence of the effectiveness of their teacher preparation programs. To accomplish this, one state university designed and piloted a Professional Education Database (PED) system to document outcomes and provide a basis for decision-making for their teacher preparation programs. The database system was designed to supplement the university's information services and implemented through collaboration with two different, successive iterative teams from the School of Technology, each represented by three graduate students completing a Master's capstone requirement in Computer Information Technology. The PED system was designed so that data could be readily managed through the Microsoft Access 2000 software. Its objectives were to be friendly, consistent and clear in design, and easy to install and maintain on any computer system; to not be redundant; and to have and maintain an audit trail for database changes and operate in a secure environment. Screens included student personal information, application information, student grade point average tracking, Praxis I and II test scores, performance assessments, school experience, certifications, and reports. (SM)

Teacher Preparation Goes Accountable: The Professional Education Database

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Overview

Within the current climate of accountability to the public and government sectors, universities must provide clear and compelling evidence of the effectiveness of their teacher preparation programs. To accomplish this, an administrative team in the Dean's Office of a comprehensive regional state university designed and piloted a Professional Education Database (PED) system to document outcomes and provide a basis for decision making for their teacher preparation programs. This database system was designed to supplement the university's information services and implemented through collaboration with two different, successive iterative teams from the School of Technology, each represented by three graduate students completing a Master's capstone requirement in Computer Information Technology.

Literature review:

In response to national, state and professional calls to increase accountability for teacher preparation programs, administrators and faculty responsible for reporting data about their teacher candidates face a Herculean task. The literature appears sparse as to how schools of education can develop their own database systems to manage critical information needed for internal and external purposes. One recent source is found in Smith's (2000) presentation at AACTE in which he states that a database design and functionality indicates the institution's values as well as ability to provide meaningful data.

With respect to accountability, Diamond (2001) reports that institutions currently face a dilemma of negative perceptions by external groups (e.g., business, government, public at large) who claim that they are provided with little clear evidence of competencies graduates should have and as a result, "they have provided little evidence that they are successful at what they are expected to do."(p. 4). Responses to public demands for assessment of programs have generally not been addressed, which has resulted in increased criticism and less support for the institutions from both public and private sectors. To counteract this decrease in support, it becomes imperative that universities engage in careful collection and analysis of performance data (annual and longitudinal) to respond to public accountability concerns.

Based on Guskey and Bailey's (2001) research, the use of combined methods of reporting are essential for effective accountability. They suggest that with deliberate planning and technological support, effective forms can be designed to report data. These include checklists, narratives, rating sheets, records, input sections, and reports. When design efforts begin with the articulation of clear purposes for a particular type of form and involve a variety of stakeholders, then decisions about what information and functions to include are facilitated.

In examining the literature around collecting data to make decisions about teacher candidate status and abilities, it becomes necessary first to differentiate between what Kifer (2001) describes as two different approaches to assessment results, namely, *status* versus *growth* or change outcomes. He describes the notion of status as assessment outcomes gathered at one time, that provide estimates of what a student knows (e.g., SAT, ACT). The score reflects an individual's knowledge or ability at a particular time. Conversely change or growth measures monitor differences in achievement over time and describe what students have learned. Performance assessments carried out at different points of the teacher preparation program are an example of growth measures. Therefore designing a flexible database that tracks *status* as well as *growth* data is imperative to ensuring a functional system for collecting, organizing, maintaining, analyzing and using meaningful information that supports program evaluation as well as teacher candidate performance assessments. Interesting to note is Nichols' (1995) claim that "the most effective means of communicating assessment results to faculty in academic departments was found to be in summary form with graphic support of tabular data presented orally at a meeting" (p. 53). Those responsible for developing, implementing, and reporting data to faculty and others would do well to heed this advice and ensure that the database not only stores growth measures but also, in conjunction with effective report writing software (e.g., Crystal Reports, Brio, etc.) allows the institution to generate reader-friendly yet comprehensive reports with graphic representations.

The PED system responds to a need

Historically, data collection on teacher candidates at this university primarily relied on the Office of Institutional Planning and Research. However, the increasing need for more complex data with greater depth and breadth for state, federal and accreditation reporting requirements became evident and served as the catalyst for designing a teacher education-specific database. A feasible and reliable data management system was designed to supplement institutional data and replace several separate School of Education filing systems (paper and obsolete computer files). This enabled the administration and faculty to respond accurately and appropriately to the Title II Teacher Education Reporting, NCATE accreditation, state, institutional and unit demands and requirements. Additionally, the university recently moved from a home-grown Student Information System to a Banner data management system for admissions, financial aid, student records, registration, and scheduling. The university personnel are dedicated to working out its bugs and seeing it put into smooth operation. Consequently, The School of Education PED system is currently independent from, but may be linked with the university's Banner System and will contain student data relevant to admission to the teacher preparation program, Praxis I and II data (from Educational Testing Service), student teaching, performance assessment and certification.

Universities often collect longitudinal and annual data from disparate in-house sources and locations, which may not be readily available and are sometimes subject to inaccuracies or input, storage or retrieval problems. The degree of specificity and accuracy needed for federal and state reporting necessitates rich and comprehensive data that may not always be readily provided by a university's Office of Institutional

Research. Deans and department chairs sometimes find they need to collect their own data for mandated federal and state reporting purposes.

Developing and implementing a database within the School of Education to collect and track various types of student and programmatic data is a solution to the above concerns. The PED system was developed to facilitate decision making and the generating of reports around a number of program effectiveness issues such as:

- How long does it take a teacher candidate from admission to completer/certification status (full-time, part-time, undergraduate, graduate, sixth year, etc.)?
- How many teacher candidates actually complete the programs and how many leave?
- What are grade point average (GPA) means and variances for undergraduate, post-baccalaureate certification students and graduate students in advanced certification programs?
- How do performances and/or grades vary across the certification programs (by content, degree, etc.)?
- How do student teacher performances and/or grades differ in Professional Development School (PDS) versus non-PDS placements?
- How do teacher candidates differ on benchmark program performance assessments at different transition points?

Administration and faculty must have expedient access to current and reliable data and must be able to accurately respond to a variety of research questions about retention, attrition, and performances of teacher candidates in programs.

Evolution of the System

The PED system was designed so that data could be readily managed through the Microsoft Access 2000 software, a desktop database package that allows users to add modify or delete data, run queries and produce reports. Although Access has disadvantages related to limited performance when run across a network and with simultaneous multiple users, as well as limited ability to compete with other full database servers, it was decided that the performance capabilities were good and that it integrated well with the Windows operating system, Microsoft Office, and allowed easy data transfer capabilities with other MSOffice components.

The initial development team wanted to ensure that the PED could provide a variety of users with different "rights" to access and/or update teacher candidate program data. It was equally crucial that the PED capture all pertinent information on each teacher candidate from application through graduation and/or certification. After a change in administrative personnel, the second iteration of the PED system was planned and launched with the new design team. The second team was comprised of new sets of School of Technology graduate students completing capstone projects and new deans from The School of Education, all of whom agreed to maintain an ongoing dialog and

continuously test and retest the system to identify and correct problems, thus ensuring a smooth operation. Team objectives for the system were that the PED had to:

- be user friendly
- be consistent and clear in design
- not be redundant
- be easy to install and maintain on any computer system
- have and maintain an audit trail for database changes
- operate in a secure environment (which allowed 3 levels of access including *administrative* users, *full data* users, and *read-only* users.)

Revisions included reorganizing data fields by chronological order of data entry; adding data fields that were needed and aligning the fields with legacy data. The system was designed to have a menu-driven application and a navigational toolbar that allowed instant connections from one data screen to another. A master table linked all underlying tables by social security number. The team set up screens that included:

- Student personal information
- Application information
- Student G.P.A. Tracking
- Praxis I and II Test Scores
- Performance Assessments
- School Experience
- Certifications
- Reports (i.e, accept, defer, and reject letters).

Additionally, Pretty Good Privacy (PGP) was installed as well as other software that allowed encrypted downloading of Educational Testing Service (ETS) scores over the internet.

Conclusions

Having an effective database with high levels of confidence and reliability provides a tool for teacher preparation programs to respond to the expectations of accountability to the public and private sectors and government leaders, market the positive aspects of teacher preparation programs and dispel negative perceptions too often held. Maintaining the integrity and hands-on support for smooth daily operation of the PED system at this university is a challenge that is presently being studied. Among the support and maintenance options currently being considered are contracting with an external agent, hiring internal support staff, and/or utilizing graduate students in technology. It is hoped that the PED and university Banner systems will soon be linked so that related fields may be downloaded as needed, contributing to more streamlined interdependent organizational efficiency.

Due to other ever present demands of accreditation, highlighted by the need for NCATE accreditation to align and measure the unit's conceptual framework with other standards, it is important that an assessment system be developed and utilized to measure and track

important teacher candidate performance data over time. The realities of national, state, and professional accreditation reporting requirements seem now to be the catalyst for appropriate institutional responses. A carefully designed professional education database is this institution's proactive response to this critical change.

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