The Essential Role of Integrating Technology Content and Skills into University Principal Preparation Programs

Kathy Dale
Fort Hays State University

Robert Moody
Fort Hays State University

Mike Slattery
Fort Hays State University

Regi Wieland
Fort Hays State University

Follow this and additional works at: https://scholarsjunction.msstate.edu/ruraleducator

Part of the Education Commons

Recommended Citation

The Essential Role of Integrating Technology Content and Skills into University Principal Preparation Programs

Kathy Dale
Fort Hays State University

Robert Moody
Fort Hays State University

Mike Slattery
Fort Hays State University

Regi Wieland
Fort Hays State University

"Just-in-time" delivery of goods and services was the call to action phrase of the 1990's, but in the 21ˢᵗ Century, just-in-time is too late. University leaders in principal preparation programs must not only respond to the call of the field, but also anticipate the needs even before school administrators recognize the content and skills necessary with which to lead. As building principals become increasingly accountable for integrating technology into instruction and infrastructure, principal preparation programs are more accountable to prepare principals to succeed in their leadership roles, acknowledge the impact of principals on student achievement and teacher performance, and accept our responsibility to reinvent preparation programs instead of just reforming them.

Understanding the critical need for highly qualified administrators, today's preparation programs must contain essential technology content, be flexible and individualized, infused with real-world problem solving, based on current research, provide access through alternative delivery modes, and focus on state and national leadership standards.

In the fall of 2004 the educational administration program faculty at Fort Hays State University (FHSU) embraced the call to action and began an extensive review of our principal preparation program. The resulting review of the literature and a program redesign sought to address the changing needs of prospective principals enrolled in our program. FHSU faculty considered the research that identified the principal as having an indirect positive impact on student learning through influencing the teacher (Quinn 2002). Faculty asked themselves what principals should know and be able to do in technology in light of the research that stated, "The teacher is a key variable in technology implementation and effectiveness. Technology's impact on teachers and their practice should be considered as important as student effects, for students move on, but teachers remain to influence many generations of students" (NCREL, p. 1).

Although the redesign of the FHSU principal preparation program encompassed much more than technology, it was a key component of preparing our candidates adequately and helping them influence student achievement. This dedication to technology in the principal preparation program at FHSU is especially important when faculty considered the research finding of Kulik, Waxman, Connell, and Gray that identified technology, when used appropriately, as improving education in the effect-size range of between 0.30 and 0.40 (Valdez, 2004). The NCREL online document was a Critical Issue posting that was researched and written by Gilbert Valdez, Ph.D., senior advisor for technology and co-director of the North Central Eisenhower Mathematics and Science Consortium at Learning Point Associates.

Research Questions

In order to reinvent a program that reflected our program mission and core values of teaching and coaching ethical leaders of learning, the following research questions were asked:

1. How will we effectively teach and coach ethical leaders of learning so they are successful in leading, inspiring, and influencing students and teachers in the school?
2. What technology content and skills do our faculty and principal candidates need to know and be able to do, and how do we integrate the technology content and skills into the new program?

This article examines current educational leadership literature, explains the methodology and model used to "reinvent" the FHSU Educational Administration program, and addresses the action steps taken to transform a traditional university program into a technology-rich

principal preparation program, which helps new administrators better serve their teachers and students.

Review of the Literature

In reviewing current literature, the FHSU education administration faculty focused on connecting theory and action to transform a 30-year-old traditional principal preparation program. Educational literature clearly signaled the need for school leaders to embrace second order change and not merely reform, but to reinvent education. A 2003 McREL paper by Waters, Marzano, and McNutty on balanced leadership stated that "A change becomes second order when it is not obvious how it will make things better for people with similar interests. It requires individuals or groups of stakeholders to learn new approaches, or it conflicts with prevailing values and norms. Second order change creates a break with the past and requires people to think outside of existing paradigms" (Waters, Marzano, & McNutty L, 2003).

Technology plays a critical role in this process. Both sides of the process must be evaluated—the technology content knowledge and application skills university faculty require to be successful and the technology content knowledge and application skills the aspiring administrator needs to be successful in the school building. "Breakthroughs require the creation of new technologies, which in turn necessitates the creation of new knowledge, all in response to a new context or societal need" (Wagoner, 2006).

Daniel Pink concluded that we have moved from an Information Age to a Conceptual Age. This required "inventive, empathic, big-picture capabilities in addition to logical, linear, computer-like capabilities of the past age" (Pink, 2006). The question for principal preparation programs then becomes: How does higher education adequately respond to this call for action and prepare school principals to lead second order change in their school buildings, and at the same time retool themselves and their principal candidates with the essential technologies for the job?

A starting point is to define what principals need to know and be able to do as pivotal leaders in their buildings and then define what technology should be threaded into their leadership preparation program. A primary consideration in this process must be given to identifying technology that will ultimately lead to improving learning and instruction. Instructional leadership can be defined in terms of a series of behaviors that are designed to impact classroom instruction (Quinn 2002, p. 447). Although research showed that principals have little direct effect on student performance because they are removed from actual classroom instruction, they can significantly impact student performance indirectly by working through teachers (449). Quinn emphasized the need for principals to work through teachers to improve student achievement using Whitaker's

research that ties principal behaviors to the principal's responsibility of "informing teachers about new educational strategies, technologies and tools that apply to effective instruction. Principals must also assist teachers in critiquing these tools to determine their applicability to the classroom (p. 447)." Leadership behaviors become a list of responsibilities that can be monitored and measured for their impact on both student achievement and teacher performance.

In *School technology leadership: An empirical investigation of prevalence and effect*, Anderson-Dexter's research confirmed that although technology infrastructure is important, the principal's technology leadership skills are even more important in effecting the use of technology as a learning and productivity tool in schools (Anderson, Dexter, 2005). A series of administrative responsibilities evolved from the research:

1. Principals are responsible for monitoring that technology supports the needs of student learning and teacher instruction.
2. Principals are responsible for providing administrative oversight for educational technology. Embedded in the oversight of technology use in the school is principal responsibility for modeling technology through their own use of it to communicate with others and carry out their daily administrative duties.
3. Principals are responsible for assessing and evaluating the role of technology in instructional and administrative uses and using the data to make data-driven decisions regarding technology.
4. Principals are responsible for ensuring equal access to technology, safety, and ethical usage. (pp. 51-52)

National and state organizations and policy makers have responded to the call to action by developing the Interstate School Leaders Licensure Consortium (ISLLC) standards for school leaders. Standard 2: Instruction and Learning emphasized learning technologies (Hessel & Holloway, 2002). In addition to the national ISLLC Standards, the International Society for Technology in Education (ISTE) adopted the National Educational Technology Standards for Administrators (NETS*A) which indicated that:

- Educational leaders inspire a shared vision for comprehensive integration of technology and foster an environment and culture conducive to the realization of that vision.
- Educational leaders ensure that curricular design, instructional strategies, and learning environments integrate

appropriate technologies to maximize learning and teaching.

- Educational leaders apply technology to enhance their professional practice and to increase their own productivity and that of others.
- Educational leaders ensure the integration of technology to support productive systems for learning and administration.
- Educational leaders use technology to plan and implement comprehensive systems of effective assessment and evaluation.
- Educational leaders understand the social, legal, and ethical issues related to technology and model responsible decision-making related to these issues. (Nets Project, 2002)

States have followed the national and international lead by developing principal leadership programs that include technology for principals. Knowledgeable and effective school leaders are extremely important in determining whether technology use will improve learning for all students" (North Central Regional Educational Laboratory 2004).

The ultimate outcome of the FHSU education administration preparation program and the PK-16 educational system is to improve student learning. Student views on technology in the Project Tomorrow study from Net Day's 2005 Speak UP event showed that (Project Tomorrow, 2006):

- 70% of students in grades 6-12 believe technology skills are necessary for doing well in school.
- 63% of students in 6-12 believe that technology skills are necessary for success in college.
- Over 50% of students in all grade levels K-12 believe that technology skills are necessary for getting a job.
- Over 25% of students in each grade group K-12 believe that technology skills are necessary for being a good citizen.
- One-third of students in each grade group K-12, believe that technology skills are necessary for being happy.

NetDay is a national nonprofit with a ten year legacy of building local school and community capacity around technology use in education. In the fall of 2005, NetDay merged with Project Tomorrow, a regional nonprofit in Orange County, California, with a successful track record of adopting and promoting innovative approaches to science education.

Methodology

The process of reinventing the principal preparation program at FHSU was and continues to be a collaborative action research process that investigates what content knowledge and skills building principals need to know and be able to do in their roles as instructional leaders. Program faculty explored current practices, challenged unproductive preparation structures and ways of training aspiring building principals, and examined ways in which reinventing the preparation program could be transformational in nature to the way principals do business. A key element of the process was the commitment of faculty to reflect throughout the process, consider their own individual technology needs and actions throughout the study, and alter those actions when necessary.
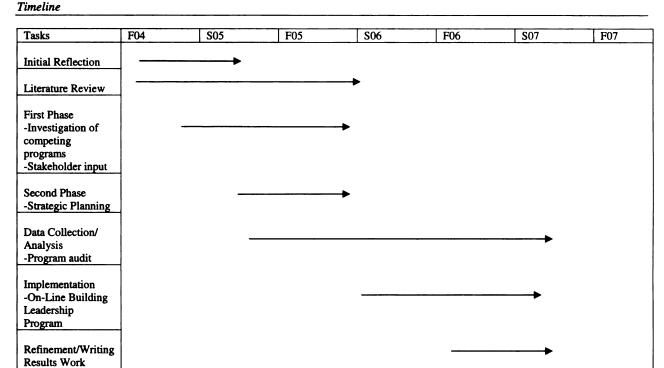
Data Collection Methods

Data was collected through a variety of methods, including collaborative action research, investigating competing programs, practicing principal interviews, student focus groups, analyzing candidate performance, enrollment and retention data, evaluating the current curriculum, and faculty reflection and dialogue. The education administration program faculty was charged with collecting data that not only directed the growth of their own technology content knowledge and skills, but also the growth of aspiring principals. The project held the promise of helping all faculty increase their understanding of technology and improve their practice. As a result of the data, faculty became aware of just how vital the need is to develop systems that will provide the time, support, and professional development activities necessary to encourage and sustain any continuous improvement initiative, especially one in which the focus—technology—is like shifting sand.

Table 1.

Timeline

Tasks	F04	S05	F05	S06	F06	S07	F07
Initial Reflection	→————→						
Literature Review	→—————————→						
First Phase -Investigation of competing programs -Stakeholder input		→—————→					
Second Phase -Strategic Planning		→————→					
Data Collection/ Analysis -Program audit			→——————————————→				
Implementation -On-Line Building Leadership Program				→—————————→			
Refinement/Writing Results Work					→————→		

(Hendricks, 2006)

Model

During the initial reflection phase and review of the literature, faculty met with focus groups of current candidates, and interviewed practicing principals and superintendents who graduated from our previous FHSU principal preparation program. Patterns and themes began to emerge from the data to guide the direction of the proposed new preparation program. Competing principal preparation programs were investigated to determine their response or lack of response to the emerging patterns and themes.

In Phase II, the faculty engaged in creative planning sessions to strategically plan for the transformation of the principal preparation program. The process involved establishing the mission of the program, developing program core values, goal/objectives, and action plans. A faculty development plan was also designed that included a heavy emphasis in technology awareness, implementation, and integration. Faculty decided to thread technology throughout each core course of the program so that the technology related to specific course content and application would be taught and applied within the appropriate course.

A program audit was conducted during Phase II that provided a systematic way of institutionalizing a process for continuous review, refinement, and improvement of candidates' performance. The audit assisted with the creation of an embedded systemic process that never allowed the program to get out of step with current and emerging needs in the field (Massy, 2003). The audit consisted of a series of five domains of activity covering both design and implementation quality:

1. Determination of desired learning outcomes in technology:
   Essential Questions: A) What should building administrators who successfully complete the FHSU preparation program know and be able to do with technology? B) How will the program individualize the learning experience with technology and build upon the candidate's prior knowledge and capability? C) How will technology threaded throughout the program curriculum achieve the ultimate desired outcome of improving teacher performance and student achievement?

2. Design of the curricula with threaded technology learning experiences and clinical experiences.

Essential Questions: A) What technology is taught, in what order, and from what perspective? B) How will the above contribute to the desired learning outcomes for technology integration? C) What course materials, software, and hardware will be required? D) How will these resources relate to others parts of the preparation program?

3. Design of teaching and learning processes that involve technology.
Essential Questions: A) How will teaching and learning of technology in the program be organized? B) What instructional methods will be used for first exposure to material, for answering questions about technology and providing technical support, for stimulating involvement in real world scenarios utilizing technology, and for providing feedback on candidate application skills?

4. Candidate learning assessment.
Essential Question: What measures and indicators will be used to assess candidate learning?

5. Implementation: quality assurance.
Essential Question: How will faculty assure themselves and others that content is delivered as intended, that teaching and learning processes are being implemented consistently, and that assessments are performed as planned and their results used effectively?
(pp. 163-164)

As a result of the program audit, faculty took the following program actions:

- The curriculum was realigned and integrated with state and national standards
- Learning outcomes for each course were identified
- The decision was made to place the Educational Administration program totally online, utilizing a blended mode of delivery—online, desktop-to-desktop conferencing, and threaded discussion.
- New courses were implemented and obsolete courses eliminated.
- Faculty attended monthly ongoing technology training to learn various technology content and applications.

- Faculty collaborated with principals, superintendents, and teachers across the state in a statewide technology initiative to expose them to current literature, new technologies, and potential teaching and learning activities.
- University-wide candidate support services and technical support were identified.
- During the 2006-07 term, faculty investigated Quality Matters (Quality Matters.com) rubrics for course design and student satisfaction to measure the effectiveness of the blended technology delivery mode. Rubrics were piloted in the EAC 803 Educational Research course during the F06, S07, and U07 semesters. Further quality rubrics will be developed for technology integration in 2007-2008.
- Pre-testing was identified as a means of identifying candidate's current technology skills and individualizing technology experiences for candidates.
- Clinical experiences involving technology was threaded throughout the program curriculum in the courses most appropriate for each particular technology

In Progress:
- Course materials, software, and hardware specifications are in progress.
- The goal of mapping curriculum standards, content and application skills with instructional activities and appropriate assessments is in progress.

Implementation: Skills Needed by Faculty and Students

Implementation of the program began in fall 2006, with all courses in the Educational Administration Master's degree delivered through blended technology, using online delivery through Blackboard software, threaded discussion, and desktop-to-desktop conferencing through Marratech software. Data collection and the program audit had revealed that students were in need of skill development in online course discussions and video conferencing. Specific technology skills embedded into courses were electronic portfolios, curriculum mapping software, using iPods and palm pilots for structured walkthroughs, personnel evaluation, data collection and budgeting. Faculty courageously took on the task of teaching online while simultaneously upgrading their own skills in online course development, including Blackboard technology, video conferencing, podcasting, curriculum mapping, and the use of DyKnow, a web-based instructional program for use

between classes and instructors. New PC Tablets were placed in use by faculty as part of an FHSU faculty pilot program and a video conference room was upgraded to include the blended technology components.

Conclusion

Transforming a 30 year-old building principal program cannot be done overnight. It is very much like constructing an airplane in flight! During the transformation process, passengers were already aboard the flight on their journey to a masters degree in educational administration. We could not stop their journey while we reflected, investigated, interviewed, and planned. In fact, our passengers became part of the collaboration and enriched the process with their insights. In reflection, faculty now know that the journey is never-ending, technology is changing daily, and passengers will always be boarding at different junctures during the continuous process of improving the principal preparation program at Fort Hays State University. Future plans for our program include

- Desktop-to-desktop conferencing will be facilitated through Elluminate software.
- Technology clinical experiences will continue to be course specific, and a new course will be added to train entering candidates in the program software necessary for them to learn in a blended technology delivery mode.
- Faculty will continue to utilize the five domains as a model to continue on an annual basis planning, evaluating, refining, and implementing the program.
- The superintendent endorsement program will be the next target curriculum for realignment.

References

Anderson, R. and Dexter, S. (2005), School technology leadership: An empirical investigation of prevalence and effect, *Educational Administration Quarterly*, 41, 49-82.

Hendricks, C. (2006). *Improving schools through action research: A comprehensive guide for educators*. New York. NY: Pearson.

Hessel K. & Holloway, J. (2002). *A framework for school leaders: Linking the ISLLC standards to practice*. Columbus, OH: Pearson.

Massey, W. F. (2003). *Honoring the trust: Quality and cost containment in higher education*, Bolton, MA: Anker.

Pink, D. (2006). *A whole new mind*. New York, NY: Penguin Group.

Quinn, D. M. (2002). The impact of principal leadership behaviors on instructional practice and student engagement, *Journal of Educational Administration*, 40(5), 447-467.

Project Tomorrow 3. (April, 2006). Our voices, our future: Student and teacher views on science, technology & education. National Report on NetDay's Speak Up Event. Archived at http://www.tomorrow.org/speakup/pdfs/SpeakUpReport _05.pdf

Wagoner, T. et al. (2006). *Change leadership: A practical guide to transforming our schools*. San Francisco, CA: Jossey-Bass.

Waters, T., Marzano, R., & McNutty, B.(2003). Working paper discussing Balanced Leadership: What 30 years of research tells us about the effect of leadership on student achievement. Paper posted to McREL, archived at http://www.mcrel.org/PDF/LeadershipOrganizationDeve lopment/5031RR_BalancedLeadership.pdf

Valdez, G. (2004, July). Discussion of *Technology Leadership: Enhancing Positive Educational Change*. Posted to Critical Issues Forum, archived at http://www.ncrel.org/sdrs/areas/issues/educatrs/leadrshp/ le700.htm