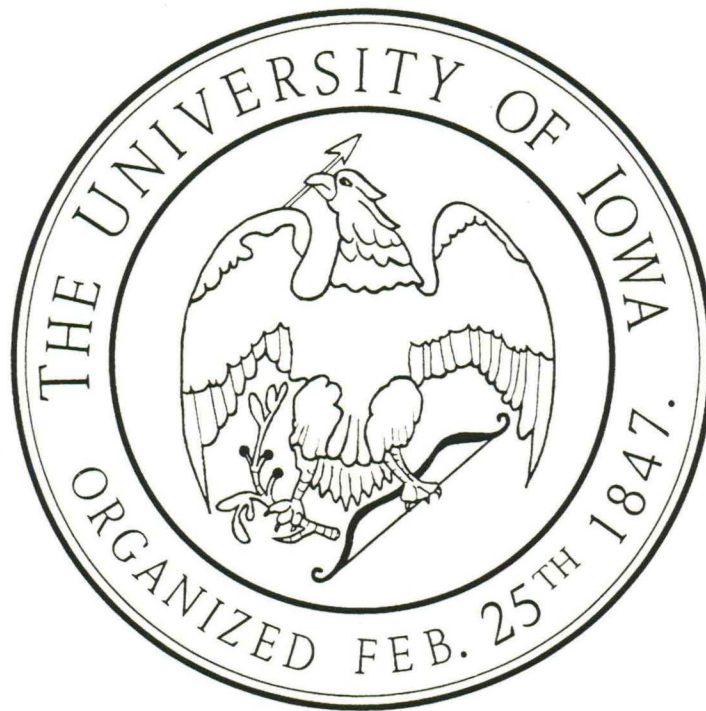


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A WHITE PAPER ON
PERFORMANCE ASSESSMENT IN
TEACHER EDUCATION:
The Iowa ePortfolio Model



THE UNIVERSITY OF IOWA
College of Education

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WHITE PAPER AUTHORS:

John Achrazoglou: Director, College of Education Technology Center with a teaching appointment in Psychological and Quantitative Foundations. Currently conducting research on using technology to advance the use of performance assessments in student and program evaluative processes. A secondary research area focuses on assistive technologies for learners with cognitive and physical disabilities.

Rebecca Anthony: Director, Educational Placement Office, College of Education. Co-author (with G. Roe) of eight books, numerous articles and principal investigator in three national surveys dealing with employment issues. National leadership positions held in career associations including past president of the Association for School, College, and University Staffing (now AAEE).

Moon-Kwon Jun: Web coordinator, College of Education. Currently conducting dissertation research focusing on teacher-training programs that help teachers integrate technology into the classroom.

James Marshall: Professor of English and English Education and Associate Dean, College of Education. Author of numerous scholarly publications. Past and present leadership positions include: President, Iowa Association of Colleges of Teacher Education; President, National Conference on Research in Language and Literacy; Chair, English Language Arts Assessment National Board of Professional Teaching Standards; Executive Secretary, Standards Project in English Language Arts; Chair, Standing Committee on Research, National Council of Teachers of English.

Gerald Roe: Associate Director, Educational Placement Office, College of Education. Co-author (with R. Anthony) of eight books, numerous articles on the employment process and a principal investigator in three national surveys dealing with employment issues.

TRADEMARK APPLICATIONS CURRENTLY IN PROCESS WITH THE
U. S. PATENT AND TRADEMARK OFFICE FOR THE TERMS:
DIGITAL BACKPACK™ CYBER TOOLBOX™
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PERFORMANCE ASSESSMENT IN TEACHER EDUCATION: The Iowa ePortfolio Model

CONTENTS:

PART ONE:

Introduction
Project Components
Technology Integration
Requisite Resources

PART TWO:

Employer Perceptions of ePortfolios in the Selection Process

APPENDIX A

APPENDIX B

FIGURES:

PART ONE:

- 1 The Iowa Model
- 2 Student ePortfolio Timeline
- 3 Faculty ePortfolio Timeline
- 4 Basic Needs for ePortfolio Framework

PART TWO:

- 5 Hiring Officials Rank Portfolio Content
- 6 Employers Rank Meaningful Examples in Prospective Teachers' Portfolios
- 7 Employers Rank Meaningful Evidence of Skills and Characteristics in Prospective Teachers' Portfolios
- 8 At What Stage in the Selection Process Do Employers Review Portfolios
- 9 Employers' Perception of the Effect of Portfolio Quality in the Selection Process
- 10 ePortfolio Fast Facts from Employers

ePortfolio —

**Using the power of nonlinear space to create
and interlink a repertoire of skills
essential for teaching in the 21st century.**

In the last five years or more, the call for standards-based performance assessment for students in teacher education programs has become a national phenomenon, offering promising new directions for reform in teacher preparation while at the same time creating a host of conceptual and logistical challenges for the programs that prepare teachers. The National Council for Accreditation of Teacher Education (NCATE) has endorsed the need for such assessments, though it has recognized the difficulty of full implementation, and so has allowed a phase-in period for institutions undergoing review. In the meantime, individual states have adopted a variety of approaches and timetables as part of their review processes, so that the national picture on this issue is complicated, if not unclear.

Teacher education programs find themselves at a critical juncture: not only must they reimagine their own basic architecture of courses and competencies, they must also find the means to demonstrate the competencies of their students in ways that are both compelling and economically feasible.

In this white paper we will demonstrate an approach to these challenges that has been under development in our home institution for the past seven years. The ePortfolio project is a web-based innovation that allows our teacher education students to demonstrate their competency and share their work on websites that we provide. While the original impetus for this work was in professional placement—we wanted a platform where students could represent their strengths to potential employers—it has since become the means by which we can address state and national mandates for standards performance assessment (see Appendix A).

The three-part developmental structure of the project, in fact, offers a mechanism for demonstrating to faculty, assessors, and to students themselves a mastery of complex learning systems and strategies.

Part Two of this paper discusses current employer interest and perceptions regarding ePortfolios in the teacher selection process.

PROJECT COMPONENTS

Contemporary state and national mandates require colleges and universities to implement substantially different methods of assessing performance to meet new proficiency standards for teacher licensure. The Iowa ePortfolio Model provides the architecture within which students can develop their skills, reflect on their practice, and showcase their strengths to a range of relevant audiences including accreditation teams at both state and national levels.

Digital Backpack™

The framework for professional development begins with the Digital Backpack™—an individual student website maintained for the collection of materials from courses and field experiences with elements of their learning linked to approved performance standards and available for review by faculty and assessors.

Electronic Portfolio

The second stage is selecting key documents and evidence of best teaching practices to create an Electronic Portfolio—a digital tool using Web technologies to present a comprehensive picture of academic preparation, performance, pedagogy, and practice to employers in the global marketplace.

Cyber Toolbox™

The third and final stage is the Cyber Toolbox™—an evolving repository from Backpack, Electronic Portfolio, and self-selected professional items for career use as the student transfers from the campus setting to the world of work.

THE IOWA ePORTFOLIO MODEL PROVIDES FOR:

- + Performance assessment tracking system
- + Employment marketing tool
- + Professional ToolBox for early career success

The focus of the portfolio framework is on the content of each of the three components: Digital Backpack™, ePortfolio, and Cyber ToolBox™. Sequential by design, seamless in appearance, each component builds upon and complements the other two. The website and the various technological applications are essential background tools that remain secondary to the content.

FIGURE I: THE IOWA MODEL



Stages of ePortfolio Development

In the first stage, students develop a Digital Backpack™, which is an individually designed and maintained website for the planful collection of materials from classes and field experiences. These materials include artifacts of students' work, including statements of teaching philosophy, sample lesson plans, observations of other teachers, examples of assignments, assessment plans, photographs and video images of teaching, as well as their own students' work which our students have themselves reflected upon and assessed.

Each of the artifacts on a student web page has been deliberately designed to address one or more of the Interstate New Teacher Assessment and Support Consortium (INTASC) standards that have been adopted by our state (see Appendix B) and each website organizes those artifacts both by course and by standard. Thus a particular lesson plan, for instance, can be found under the course where it was assigned and evaluated and, at the same time, under the standard which it addresses.

As students move through their program, they add performances and artifacts to their Backpack in each course, and by the end of student teaching, they have electronically collected multiple instances of their work, all tied directly to individual INTASC standards. (Figures 2 and 3 illustrate student and faculty timelines for the ePortfolio process.)

BackPacks allow students to archive materials much like a museum — collecting, analyzing, and displaying relevant works.

- Critiques of books & articles
- Observations of classrooms
- Interactions with students
- Statements of philosophy
- Classroom management strategies and beliefs
- Field-based journals
- Unit and lesson plans
- Evaluations of proposed educational reform
- Autobiographical reflections
- Digital representations of teaching
- Critical reflections and observations of their own teaching

FIGURE 2: STUDENT ePORTFOLIO TIMELINE

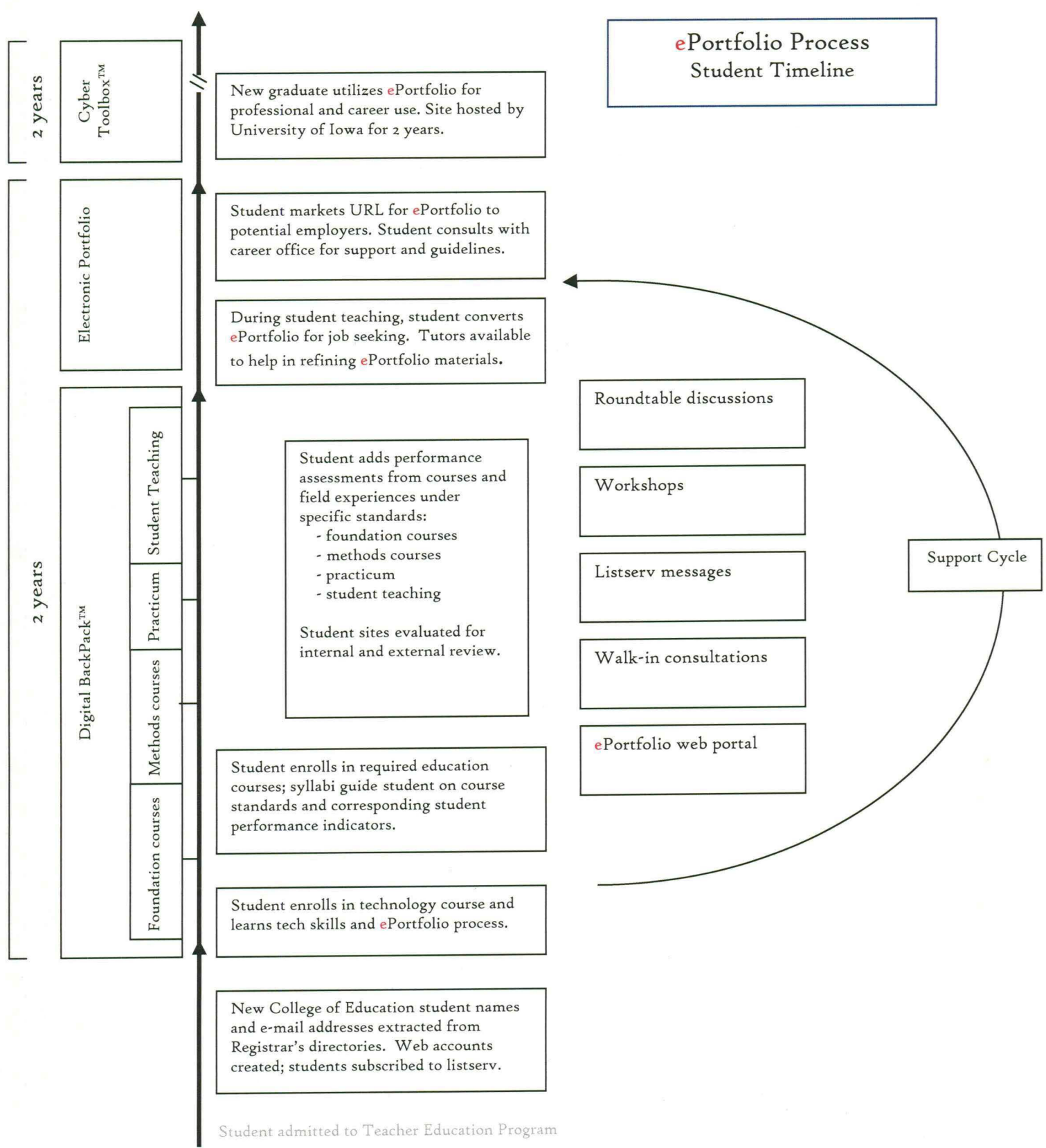
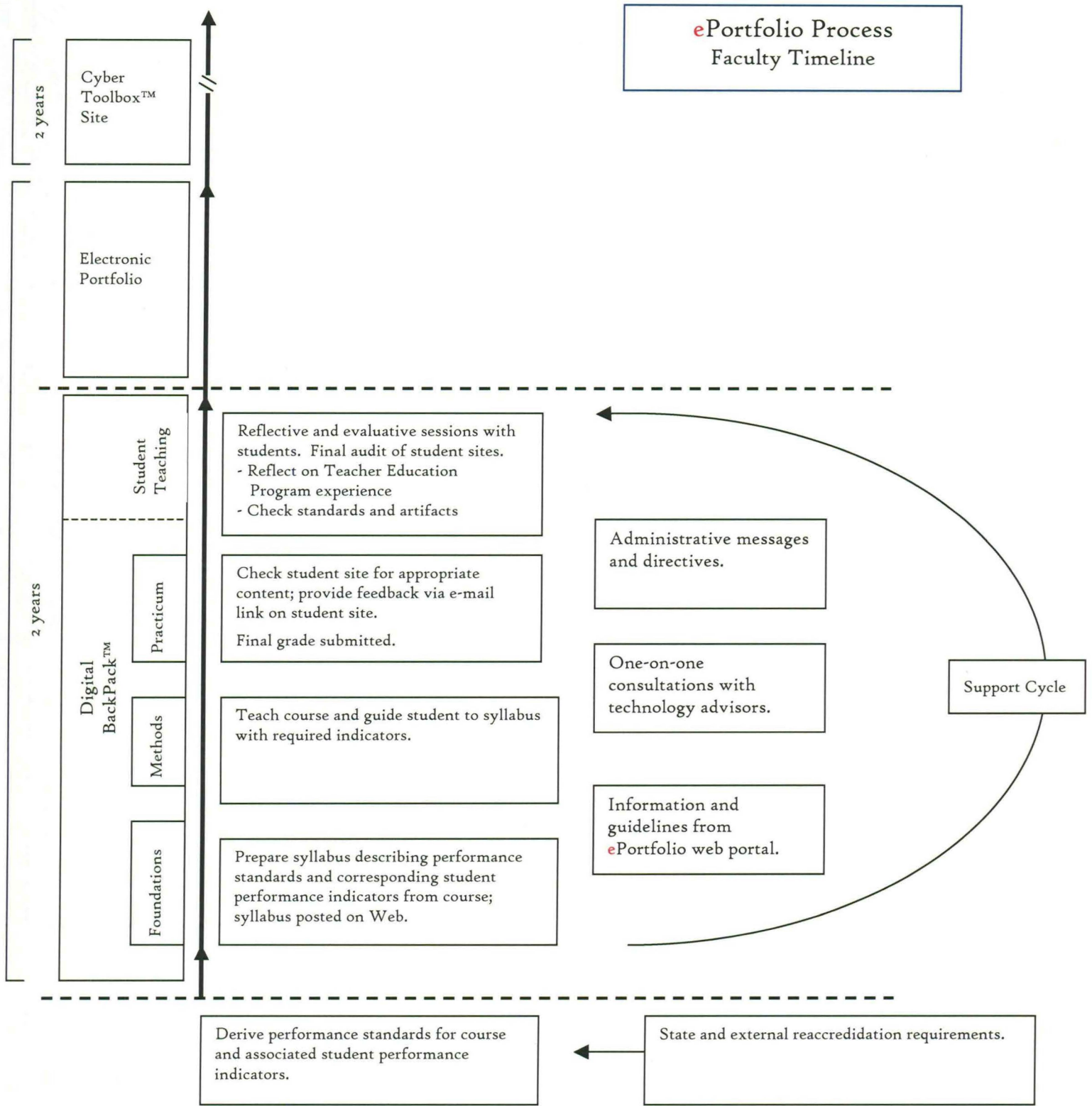


FIGURE 3: FACULTY ePORTFOLIO TIMELINE



Prior to a comprehensive technology-based system, teacher-training institutions had little choice but to gather paper materials in notebooks, report drafts, and file folders for review and analysis by assessors for state or national accreditation agencies. A primary advantage of an ePortfolio framework—over traditional three-ring binders—is to afford instant and simultaneous availability to multiple viewers. The Iowa Model allows for immediate access to all student work in the Digital Backpack™; assessors can randomly select samples of work in various subject areas or can choose to review all work. From any location, an assessor can enter a URL and a password and have instant access to course syllabi and performance assessments documenting the program’s compliance with relevant professional expectations and standards.

Later in the second stage, students work with faculty, technology tutors, and career specialists to revise and edit the materials in the Digital Backpack™ into the ePortfolio—a more polished and cleanly conceived record of work that will be shared with potential employers. Here students think about the artifacts and performances that most clearly represent their best practice, culling those that are redundant or less than complete, and enhancing those that show particular promise. They work with one another in completing this project, and in the end conduct a presentation of their portfolio in seminars and roundtables, explaining the choices they have made and asking for responses that will enable them to make even further improvements.

Finally, after graduation, the ePortfolio becomes a Cyber ToolBox™—an evolving repository of teaching ideas and materials that students can use for further

Each semester, websites are archived on the server for historical and review purposes.

Archiving secures materials in their original form.

Assessors can select archived materials from their choice of semesters or academic calendars.

professional development. Students can maintain their websites for at least two years after completion of our program, and we encourage them to continue to collect the kinds of artifacts and performances that they have already included in their ePortfolios. These can be shared with colleagues, with students, with administrators and potential employers as they move ahead in their profession. And just as important, they can provide the means for serious reflection about their own development as educators.

In this easily accessible, easily negotiated system, students can see their own instructional patterns and emerging beliefs, as well as tangible evidence of progress toward established standards. It is both a developmental record of their professional life and a metacognitive opportunity for them to re-think the direction and emphases of that professional life. And since the whole portfolio can be accessed easily with a URL, it is a means for sharing that life, or parts of it, with colleagues across the hall or across the country.

Outcomes

Innovations in Assessment Skill

Increased opportunities for assessment contribute to more reliable data on student proficiencies. Equally important is the power of multimedia to convey the complexities of academic preparation and the ability to document developing pedagogical skills and requisite professional and personal attributes.

Broadening Student Learning

As the student develops the framework, the act of composition creates a different kind of thinking. The composition of hyperspace is analogous to a museum where artifacts can be prominently displayed or discreetly cataloged for future use. Building upon the success of this model, the project today (2002) achieves a seamless integration of high-end multimedia tools creating a metacognitive environment

allowing students to use the power of nonlinear space to create and interlink a repertoire of skills essential for teaching in the 21st century. The process of metacognition is increased as students continually reflect on the interconnectivity of coursework, assessment and pedagogy. Students begin to see—and comprehend—their instructional patterns, emerging beliefs, and tangible evidence of progress toward established standards. The process permits students to connect learning from different courses, experiences, and disciplines—a process that would be difficult, if not impossible using traditional assessments.

Curricular Review and Dialog

Encompassing curricula in early childhood, elementary, and secondary education, The University of Iowa's College of Education assessment process is rapidly and consciously embracing the power of technology afforded by the ePortfolio framework. From the beginning of the project faculty were brought together to review curriculum and program goals and to comply with standards mandated by the State of Iowa Department of Education. Today, faculty use the framework to help students document indicators through advanced web and multimedia technologies. The project has fostered and enhanced dialogue among faculty members, administrators, and students at all stages of the teacher preparation program.

Employer Interest

Dating back to 1996, hiring officials were consulted about the usefulness of web-based teaching evidence. Through surveys and one-on-one interviews, hiring officials representing districts from small-Iowa towns to urban Houston, shared critical reflections about the purpose and use of employment ePortfolios. From the elementary principal to the district superintendent, employers acknowledge that portfolios

**ePortfolios
provide
an excellent
prescreening tool
overcoming
storage dilemmas
and obstacles of
space and time.**

function as important indicators in the selection process. ePortfolios suggest that advanced technology skills will be part of the new teacher's repertoire and provide an inventory of aptitudes and capabilities that demonstrate mastery of professional skills.

TECHNOLOGY INTEGRATION

The integration of technology begins as a student enters a teacher education program although the student completes a major and earns an undergraduate degree from the College of Liberal Arts and Sciences. Starting with the required technology course in the College of Education, then bolstered by occasional tech boot camps and roundtables, students gain practical experience using digital tools, discuss content and design issues relating to portfolio production including copyright laws and personal safety issues, select and upload instructionally sound material, participate in sessions that culminate in peer and professional review, and learn to readily integrate and model technology.

Each semester, more than 500 students are placed in methods classes, practica, and internships in local, regional, and international settings. From any location, electronic portfolios allow for efficient management and distribution of required materials and effective interaction with university faculty and field evaluators. Furthermore, the ePortfolio avoids the problems and delays of circulating traditional paper materials. Students regularly upload to their site assignments, observations, and relevant artifacts. Unanticipated, but indeed welcomed, was the technology literacy attained by cooperating teachers and supervisors who accessed student websites to review assignments.

Resources Easily Accessible

The College of Education maintains a website portal containing official University of Iowa and College of Education logos, banners, graphic images of the state standards, and a skeleton template for an ePortfolio. These resources make each

student's website easy to build and easy to maintain. Uploading procedures and managing webspace soon become a conventional and customary practice for teacher education students.

Because the process is prescribed, students can concentrate on academic skills and proficiencies as an educator rather than mastery of web design applications. The framework is consistent and professional but allows for individual expression in appearance and content in specific assignments and projects illustrating compliance of standards or mastery of particular skills.

Student ePortfolios are
rich in
individual differences
and
intellectual complexity.

Security Measures

Website authentication methods are employed to provide a password protected secure area for intellectual property of faculty and students. Further password protection is required because Digital Backpack™ materials may include sensitive items such as media images of children in the classroom, journal entries, official documentation, and personal reflections that may reveal details about students, parents, and other educators. In recognition of individual privacy rights, the University and school district's legal counsel collaborated to devise media release forms distributed to students and faculty for use in field experiences.

Other databases contain student demographic data including test scores (ACT, Praxis), courses taken and grades earned as well as information about faculty appointments, interests, publications, and service activities. In order to review these confidential databases, a password or authentication is required for review.

REQUISITE RESOURCES

Successful implementation of an ePortfolio framework requires time, energy, resources, and the collaboration of college administrators, faculty, and professional

staff. College-wide commitment to the project is critical since no one group can be responsible for the totality of this complex system. The administrative details and the systematic and continuous preparation and review result in an imperceptible but invaluable infrastructure for students in the program.

Future developments in technology can only enhance the process. For the present, the Iowa Model depends upon resources and support personnel represented in Figure 4.

FIGURE 4: BASIC NEEDS FOR ePORTFOLIO FRAMEWORK

TECHNOLOGY BASICS

- 1. Web Server**
 - a. Windows 2000 server
 - Dual Xeon Processors
 - 1 G RAM
 - 100 G Storage
 - b. Security methods for intrusion and viruses
 - URL Scan
 - Integrated operating system security
 - c. 2,900 current student accounts
 - d. Web server administrator (part-time)
- 2. Student Websites**
 - a. Sites accessed and managed with FTP
 - b. 10 megabytes of space, increased if requested and approved
 - c. Secured folder in each account; password required to view materials in secured folder
- 3. Software for Web Production in Laboratories**
 - a. Macromedia Dreamweaver*
 - b. Microsoft FrontPage*
 - c. Microsoft Office*
 - e. FTP* (Windows) Fetch* (Macintosh)
- 4. Multimedia Tools and Utilities in Laboratories**
 - a. Scanners
 - b. PhotoShop*
 - c. Digital cameras and digital video cameras **
 - d. iMovie*
- 5. Support and Instructional Functions**
 - a. Technology in the Classroom course
 - b. Support hours in computer lab
 - c. Evening workshops and roundtables
 - d. ePortfolio portal website

* Site licensed by institution, no charge for students.
** Checked out to College of Education students.

PART TWO

Employer perceptions of ePortfolios *in the selection process*

Survey Profile and Methodology

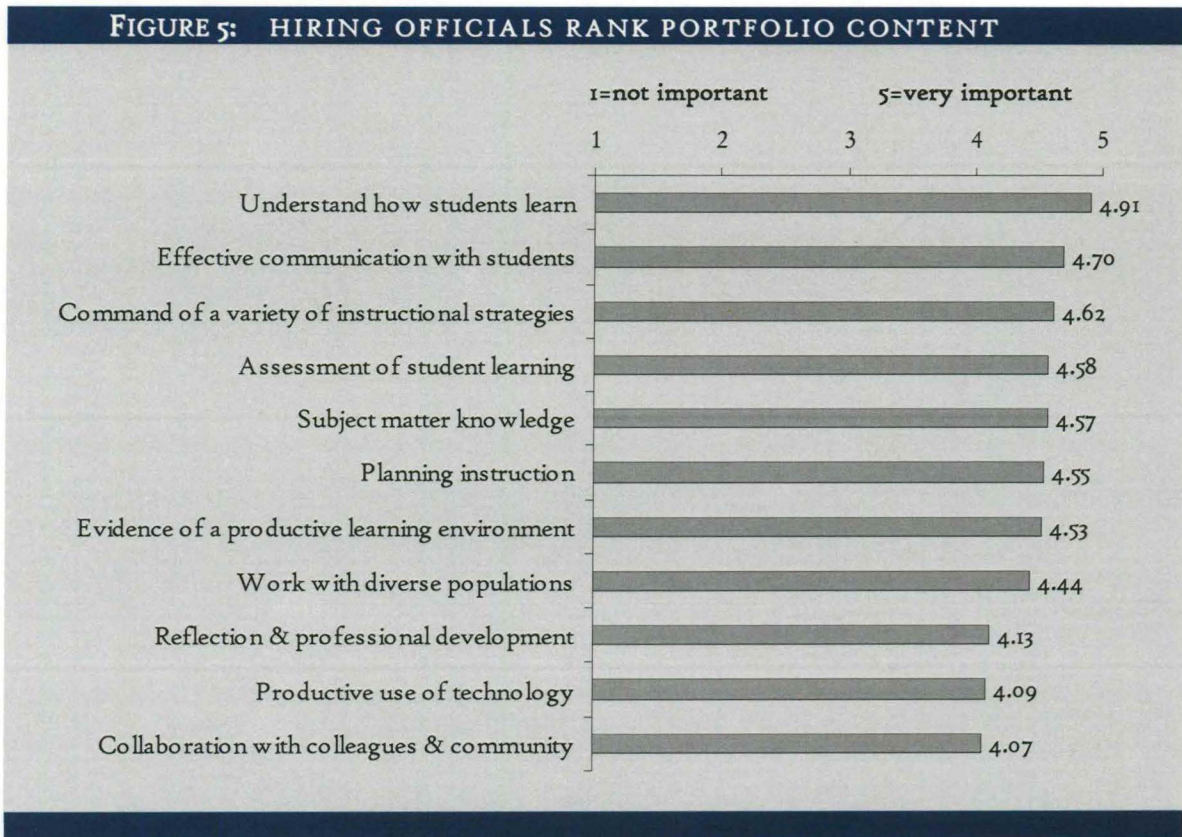
In a 2002 survey, employers were asked to share their perceptions of portfolio content relative to prospective candidates' preparation, experience, and potential for success. School districts in urban, suburban, small city, and rural settings participated in the survey. School districts represented enrollments of 625 students to 52,000 students with yearly per-pupil expenditures ranging from less than \$5,000 per student to nearly \$10,000 per student.

Survey responses were tabulated and statistical mean scores were calculated based on scorer rankings from over 200 practicing administrators. Respondents included central office administrators (human resource specialists, curriculum directors, and superintendents); elementary, middle school, junior high, and high school principals from districts in California, Illinois, Iowa, Missouri, Texas, and Virginia. The return was generous with a 61% response rate.

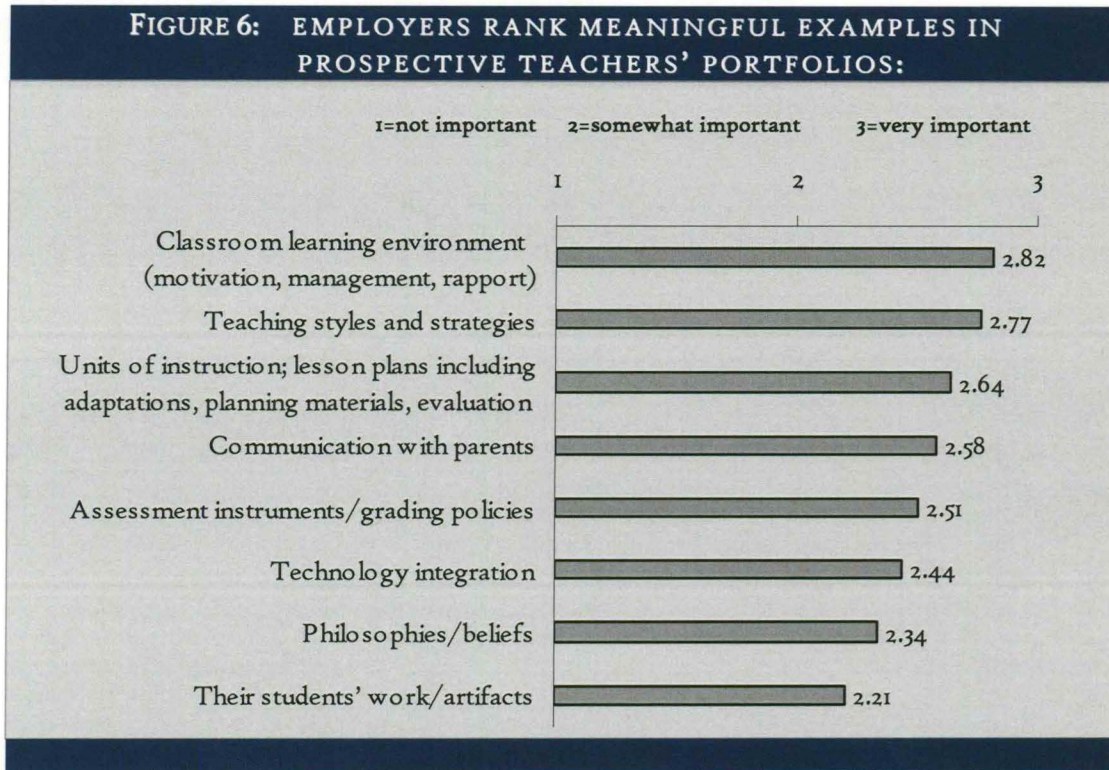
Employer's Rank Portfolio Material

The eleven items in Figure 5 represent standards adopted by state and national educational associations and state departments of education. Employers were asked to rank items in regard to their importance in the job seeker's portfolio and in relation to the job seeker's potential for success.

Selecting appropriate and consequential content for a portfolio is central to a job seeker's success. Survey responses reinforce that each portfolio item or artifact be carefully selected and targeted for the intended audience.



It is significant to note that respondents judged all of the items to be important indicating they seek and consider evidence of preparation and experience consistent with state and national educational standards. Responses from administrators at all levels and from large to small districts showed only slight variations. Understanding how students learn, effective communication with students, and command of a variety of instructional strategies received highest rankings.

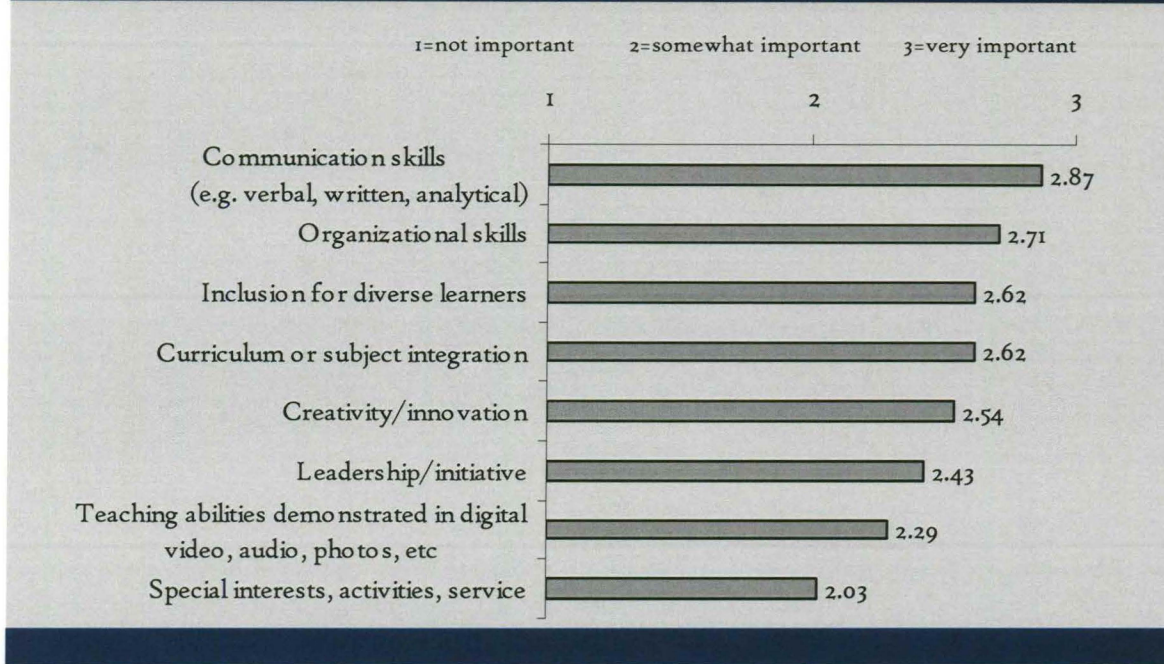


Responses from hiring officials show a consensus of opinion about the importance of ePortfolio items that reveal a teacher's knowledge and understanding of pedagogy and sound educational theory and practice. Employers expect to find authentic documentation of student experience, training, and professional consciousness.

Developing a meaningful portfolio depends upon selection of items and artifacts that demonstrate instructional prowess and their presentation in a coherent and deliberate progression.

The danger of not building a portfolio around established and recognized standards and acceptable content can result in a *cyber scrapbook that detracts from the prospective teacher's image.*

FIGURE 7: EMPLOYERS RANK MEANINGFUL EVIDENCE OF SKILLS AND CHARACTERISTICS IN PROSPECTIVE TEACHERS' PORTFOLIOS:

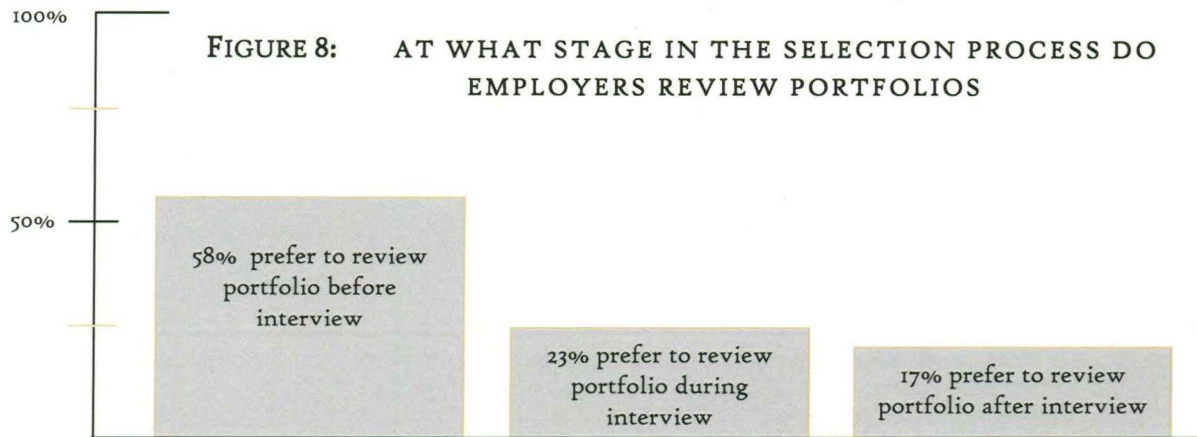


Foremost among all levels of hiring officials is evidence of the prospective teacher's ability to engage in effective communication with students, colleagues, parents/guardians, and the community. Evidence of inclusion for diverse populations was ranked progressively higher by administrators representing small to large school districts. All items were ranked as somewhat important and mean responses for more than half of the items were ranked above 2.50 with 3.00 representing the highest level of importance.

Employers in all settings and at all administrative levels placed evidence of the candidate's special interests, activities, and service as somewhat important but ranking below all other items, perhaps because this type of information is routinely included in the candidate's résumé, cover letter, or the school district's application form.

Employers Rank Importance and Use of Portfolios

Administrators were asked when they prefer to review ePortfolio content. Is it most common before the interview? During the interview? Or after the interview? Figure 8 illustrates hiring officials' preferences.



Overall, fifty-eight percent stated they prefer to review portfolios before the interview. Sixty-seven percent of central office administrators, many of whom are responsible for initial screening processes, prefer to review portfolios before meeting a candidate. Greatest preferences for reviewing portfolios prior to the interview were expressed by the districts with the smallest (under 2500 students) and the largest (over 50,000 students) enrollments. A few respondents indicated a preference for reviewing portfolios both before and during the actual interview.

Because there are no handling costs and no storage issues with web-based ePortfolios, employers worldwide can review key teaching practices and strategies prior to a face-to-face interview by simply clicking a mouse.

Portfolio Impact on Selection Process

79% indicate a portfolio is an important tool in a job search.

Seventy-nine percent of the respondents stated that a job seeker's ePortfolio can be a significant selection tool along with references, credentials, transcripts, résumé and cover letter, and interviews. Only minor variations were expressed by building administrators and central office staff; some regional variation was noted, although administrators from all geographic areas found the portfolio to be an important tool. Central office administrators, primarily in the human resource area, indicated that portfolios are of great consequence in the hiring process; in fact, 81 percent indicated that

portfolio is an important selection tool.

Portfolio Quality Counts

Overall, school administrators find portfolios of real consequence in the hiring process. A well-prepared portfolio can contribute to a candidate's success; however, respondents caution that a poorly-constructed portfolio can diminish an applicant's chance of employment. Portfolios that do not reflect standards or recognized teaching proficiencies are burdensome and distracting. High school principals revealed the strongest opinions about the quality of portfolios; seventy-one percent of them stated that a poorly constructed portfolio could decrease chances of employment while that same number of administrators stated that a well-constructed portfolio can increase job chances.

FIGURE 9:
Employer's Perception of the Effect of Portfolio Quality in the Selection Process

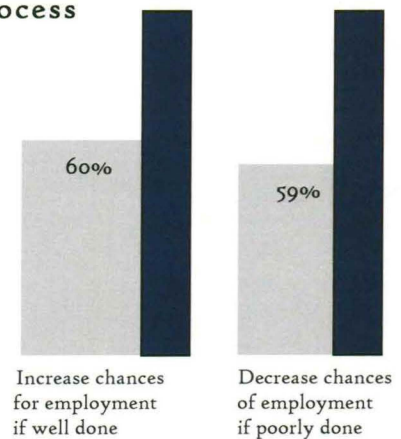
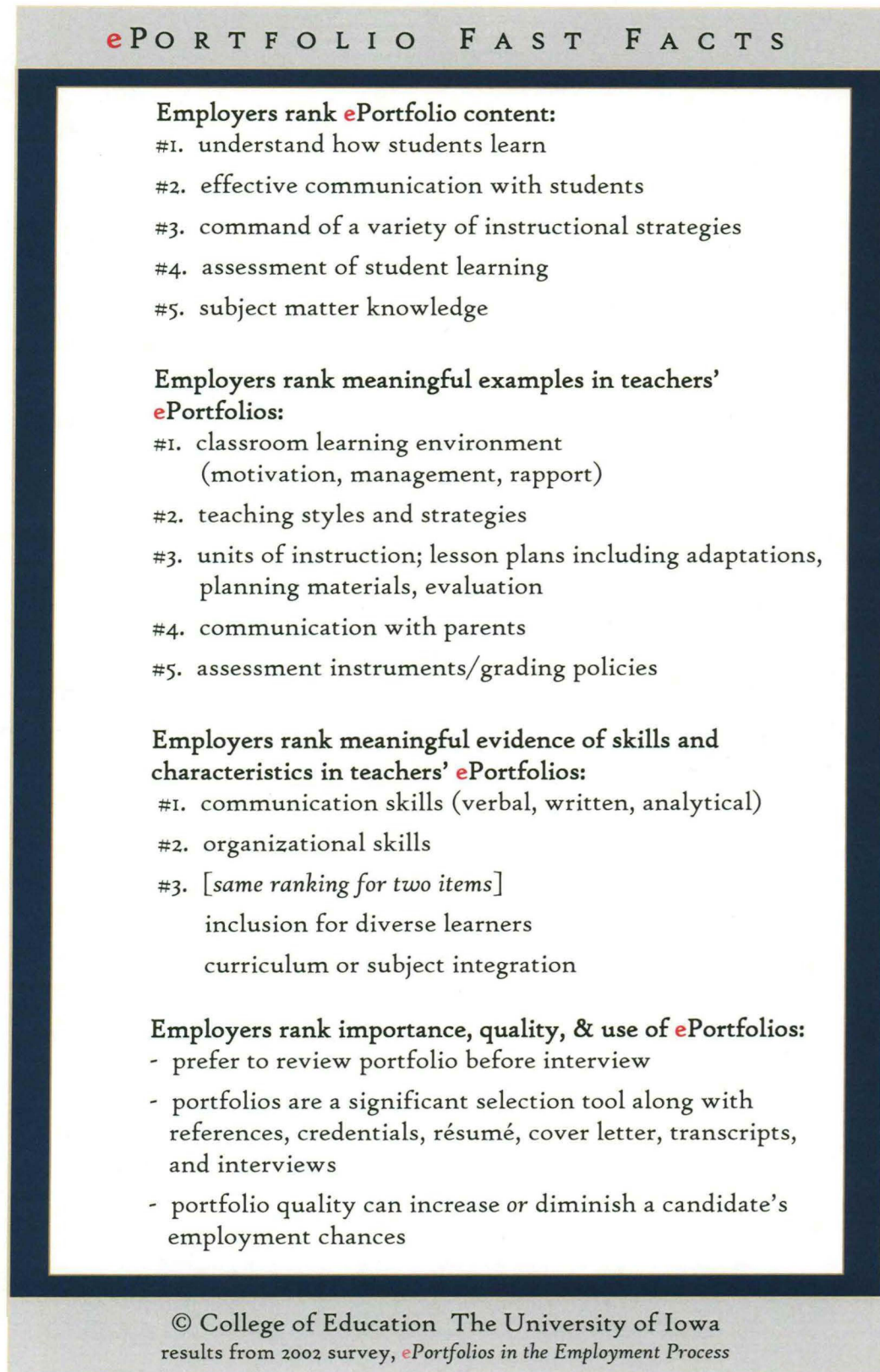


Figure 10: ePortfolio Fast Facts from Employers



Appendix A

Background: The pilot project started in 1995 when Anthony and Achrazoglou took a traditional paper-based employment portfolio and developed an electronic version using web-based multimedia tools. Factors influencing the development of the ePortfolio Project included a need for a meaningful way to teach instructional technology, a desire for a new electronic tool for job-seeking, and a mechanism for building a flexible toolbox of professional skills that easily transfer from the campus setting to the world of work.

To view a sample ePortfolio, go to:
<http://www.education.uiowa.edu/eportfolio>

For a PDF file of White Paper, go to:
<http://www.education.uiowa.edu/eportfolio/whitepaper.pdf>

Appendix B

Graphic images of mandated state standards provided to students for use in building their ePortfolio

▶ Standards

Subject Matter Knowledge: Candidates understand the major concepts, assumptions, debates, processes of inquiry and ways of knowing that are central to the subjects they teach.

Technology: Candidates understand and know how to use computer technology in their teaching.

Student Learning: Candidates understand how learning occurs-how students construct knowledge and acquire skills-and know how to use instructional strategies that promote student learning

Diverse Learners: Candidates understand how students may differ in their approaches to learning and create instructional opportunities that are equitable and adaptable to diverse learners.

Planning Instruction: Candidates understand learning theory, curriculum development, and student development and know how to use this knowledge in planning instruction to meet curricular goals.

Instructional Strategies: Candidates understand and know how to use a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

Learning Environment: Candidates know how to help students work productively and cooperatively with each other in complex social settings.

Communication: Candidates communicate effectively, understand the role of language in learning, and foster active inquiry, collaboration, and interaction in the classroom.

Assessment: Candidates understand the uses, advantages, and limitations of different types of formal and informal student assessments.

Reflection and Professional Development: Candidates understand the importance of reflection, self-assessment, and learning as ongoing processes and actively seek opportunities for professional growth.

Collaboration, Ethics, and Relationships: Candidates understand schools as connected to larger community contexts and foster relationships with parents, school colleagues, and organizations that will support students' learning and development.

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