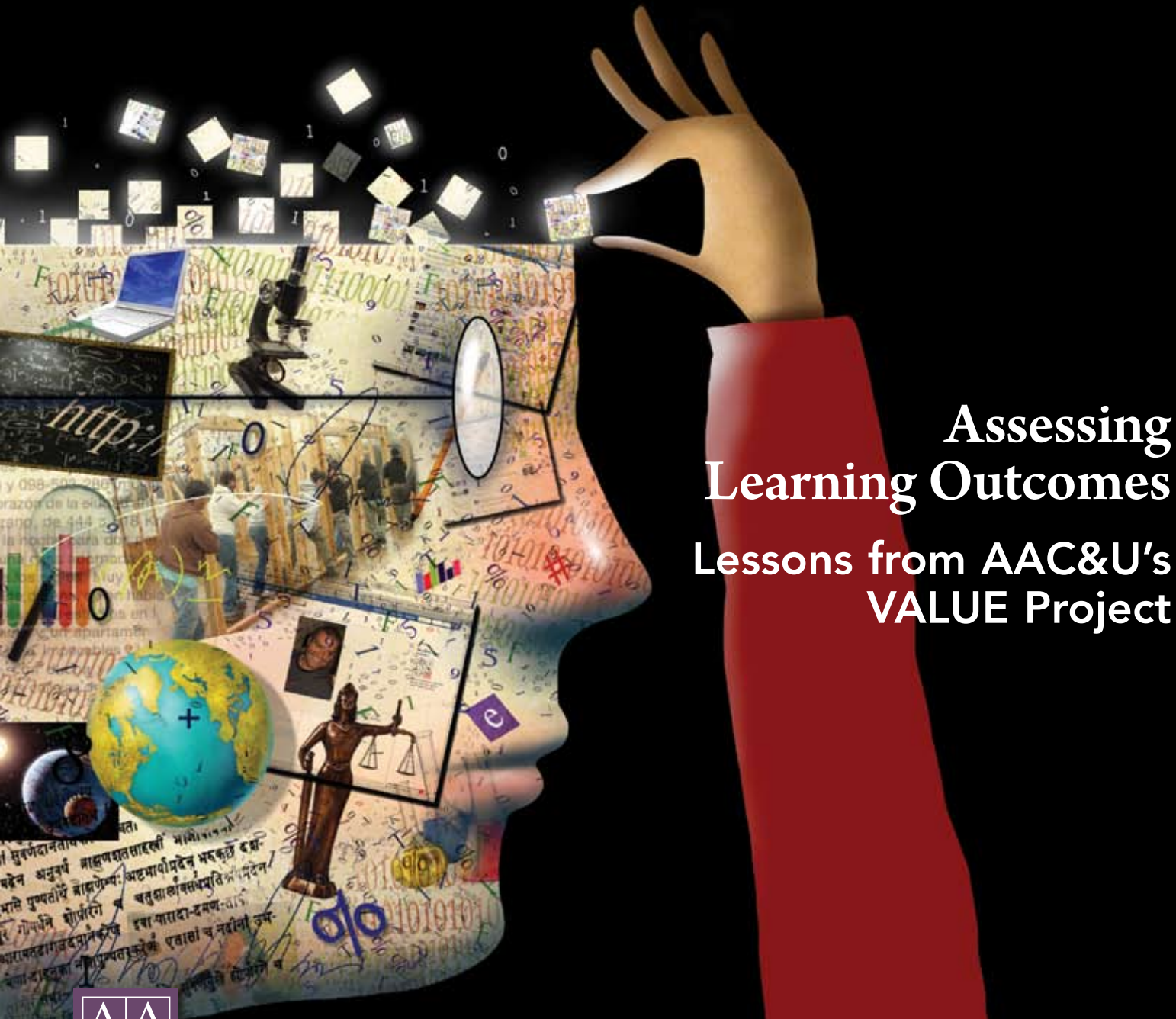# peerReview

EMERGING TRENDS AND KEY DEBATES IN UNDERGRADUATE EDUCATION

Assessing Learning Outcomes

Lessons from AAC&U's VALUE Project

CONTENTS

peer*Review*

EMERGING TRENDS AND KEY DEBATES IN UNDERGRADUATE EDUCATION
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The higher education community continues to engage in efforts to effectively communicate among colleagues and with audiences outside the academy about what students are learning in college and the value of a college degree. Calls for greater accountability for student learning have focused, however, on the simplest of indicators related to student success, e.g. retention and graduation rates. It is important that students who come to higher education remain and successfully complete their studies, of course. However, it is even more important that our students actually learn what we have determined is critical and that they do so at a high level of quality. To date, the emphasis from policy makers and many higher education leaders has been to rely on standardized test scores as proxy measures for quality student learning on our campuses.

Given that most campuses using the leading standardized tests rely upon only a sample of students entering and leaving our institutions, the results of these tests give only a snapshot of learning on a limited set of outcomes at two points in time; and the scores are of little use (and often not reported) to students or faculty. It is surprising, then, that so much attention and reliance is being placed on this thin wire. Significantly, little information from these test results is being used by students or faculty to guide pedagogical and curricular improvements and enhance the quality of teaching and learning. This is a weak strategy.

The Valid Assessment of Learning in Undergraduate Education project (VALUE) is a national project of the Association of American Colleges and Universities' Liberal Education and America's Promise (LEAP) initiative that is exploring the possibility of an alternative approach to assessing learning. VALUE is developing an alternative that can provide the types of information that students can use to develop their own abilities to self-assess their learning and to reflect on their progress. It can inform faculty about what areas of learning, assignments, and pedagogies are effective. And, finally, it can provide a basis for programs, departments, and institutions to showcase student learning.
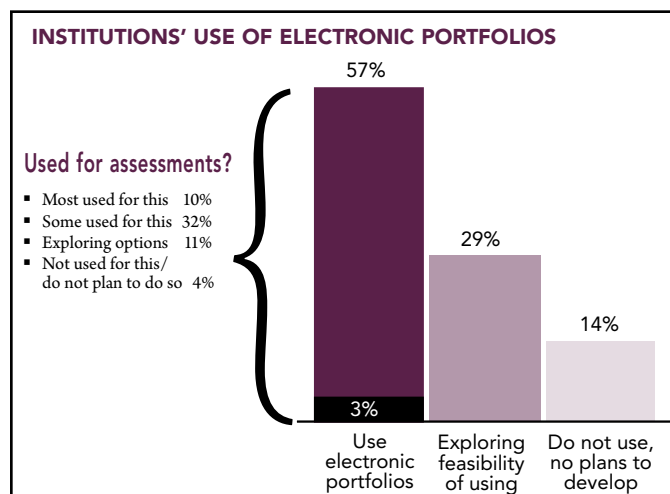
VALUE builds on the existing work of faculty and others on our campuses to develop rubrics—statements of expected learning—for a broad range of essential learning outcomes. Faculty teams from over forty institutions have developed the rubrics for a set of essential learning outcomes drawn from LEAP, including those that have typically been unexamined because they appeared to be too ineffable to assess. We are documenting the shared expectations around student learning among faculty and student-affairs professionals and across different types of institutions. These shared core criteria for learning provide a foundation for national conversations about quality learning and how our students' work demonstrates this quality.

The articles in this issue show how VALUE can work. They present a promising approach to assessing student learning in its rich and robust fullness that provides faculty with information they can use to improve teaching; provides students with expectations for learning at progressively more complex levels of performance; builds from the work that faculty and students engage with through the curriculum and cocurriculum on our campuses; and allows programs and institutions to report aggregate findings of learning gains to internal and external audiences on the broad array of outcomes associated with the global and complex world in which we live.

More than seventy campuses across the country have pilot tested the rubrics with their students' work through e-portfolio collections or with traditional paper assignments and artifacts to determine the reliability and validity of the rubrics in assessing student learning. Through the feedback from the pilot assessments, faculty teams have revised the rubrics to enhance their clarity, usefulness, and utility. In a soon-to-be-released AAC&U survey of its members, a strong majority are already using e-portfolios, in some form, and more are exploring the feasibility of using them (see figure below).

VALUE is not the only answer to the assessment and accountability challenge, but it is a promising alternative that is needed to redirect the focus of the national conversation toward student learning based on authentic evidence. — **TERREL RHODES**

INSTITUTIONS' USE OF ELECTRONIC PORTFOLIOS

Used for assessments?
- Most used for this   10%
- Some used for this   32%
- Exploring options   11%
- Not used for this/ do not plan to do so   4%

57%

29%

14%

3%

Use electronic portfolios

Exploring feasibility of using

Do not use, no plans to develop

Source: *Learning and Assessment: Trends in Undergraduate Education.* AAC&U/Peter D. Hart Research Associates, forthcoming.

The VALUE Project Overview

As part of the Association of American Colleges and University's Liberal Education and America's Promise (LEAP) initiative, the Valid Assessment of Learning in Undergraduate Education (VALUE) project contributes to the national dialogue on assessment of college student learning. VALUE builds on a philosophy of learning assessment that privileges multiple expert judgments of the quality of student work over reliance on standardized tests administered to samples of students outside their required courses. This project is an effort to focus the national conversation about student learning on the set of essential learning outcomes that faculty, employers, and community leaders say are critical for personal, social, career, and professional success in this century and this global environment. The assessment approaches that VALUE advances are based on the shared understanding of faculty and academic professionals on campuses from across the country.

VALUE assumes that

- to achieve a high-quality education for all students, valid assessment data are needed to guide planning, teaching, and improvement. This means that the work students do in their courses and cocurriculum is the best representation of their learning;
- colleges and universities seek to foster and assess numerous essential learning outcomes beyond those addressed by currently available standardized tests;
- learning develops over time and should become more complex and sophisticated as students move through their curricular and cocurricular educational pathways within and among institutions toward a degree;
- good practice in assessment requires multiple assessments, over time;
- well-planned electronic portfolios provide opportunities to collect data from multiple assessments across a broad range of learning outcomes and modes for expressing learning while guiding student learning and building reflective self-assessment capabilities;
- assessment of the student work in e-portfolios can inform programs and institutions on their progress in achieving expected goals and also provide faculty with necessary information to improve courses and pedagogy.

PROJECT ACTIVITIES

VALUE's work is guided by a national advisory board that is comprised of recognized researchers and campus leaders knowledgeable about the research and evidence on student achievement of key learning outcomes and best practices currently used on campuses to achieve and measure student progress. VALUE focuses on the development of rubrics for most of the essential learning outcomes that articulate the shared expectations for student performance. Achievement and assessment of these outcomes is demonstrated in the context of the required college curriculum (and cocurriculum), and includes models for e-portfolios and rubrics describing ascending levels of accomplishment (basic, proficient, advanced, etc.).

LEARNING OUTCOMES FOR THE DEVELOPMENT OF METARUBRICS

The essential learning outcomes addressed in the project are:

Intellectual and Practical Skills
- Inquiry and analysis
- Critical thinking
- Creative thinking
- Written communication
- Oral communication
- Quantitative literacy
- Information literacy
- Teamwork
- Problem solving

Personal and Social Responsibility
- Civic knowledge and engagement—local and global
- Intercultural knowledge and competence
- Ethical reasoning
- Foundations and skills for lifelong learning

Integrative Learning
- Integrative learning

VALUE LEADERSHIP CAMPUSES

The VALUE project selected twelve leadership campuses to participate, based on established student e-portfolio use to assess

student learning. While selected campuses use e-portfolios in different ways and in different places in the curriculum, each VALUE leadership campus uses e-portfolio systems in which students collect coursework and related activities in their curricular and cocurricular lives. Upon acceptance into the project, these institutions agreed to test the rubrics developed through VALUE on student e-portfolios on their respective campuses to determine the usefulness of the rubrics in assessing student learning across the breadth of essential outcomes. In addition, each leadership campus agreed to provide faculty feedback on the usefulness, problems, and advantages of each rubric they tested.

VALUE PARTNER CAMPUSES

As the rubric development process proceeded and leadership campuses tested the rubrics, other campuses became aware of the project and began requesting permission to use the rubrics on their campuses. While many of these campuses did not use e-portfolios, they did have collections of student work on which they wished to test the rubrics and provide the project with feedback. As a result of sharing rubrics with this second set of institutions, VALUE now has seventy partner campuses.

VALUE ALTERNATIVE TO TESTS

There are no standardized tests for many of the essential outcomes of an undergraduate education. Existing tests are based on typically nonrandom samples of students at one or two points in time, are of limited use to faculty and programs for improving their practices, and are of no use to students for assessing their own learning strengths and weaknesses. VALUE argues that, as an academic community, we possess a set of shared expectations for learning for all of the essential outcomes, general agreement on

what the basic criteria are, and a shared understanding of what progressively more sophisticated demonstration of student learning looks like.

RUBRIC DEVELOPMENT

As part of the VALUE project, teams of faculty and other academic professionals have been gathering, analyzing, synthesizing, and drafting rubrics (and related materials) to create what we are calling "metarubrics," or shared expectations for learning that correlate to fourteen of the AAC&U Essential Learning Outcomes. Rubrics are simply statements of key criteria or characteristics of the particular learning outcome; statements of what demonstrated performance for each criterion looks like at four levels displayed in a one-page table (see example on next page). The VALUE rubrics are "meta" in the sense that they synthesize the common criteria and performance levels gleaned from numerous individual campus rubrics and synthesized into general rubric tables for each essential learning outcome. Each metarubric contains the key criteria most often found in the many campus rubrics collected and represents a carefully considered summary of criteria widely considered critical to judging the quality of student work in each outcome area.

The rubric development process is a proof of concept. The claim is that faculty and other academic and student personnel professionals do have fundamental, commonly held expectations for student

learning, regardless of type of institution, disciplinary background, part of the country, or public or private college status. Further, these commonly shared expectations for learning can also be articulated for developmentally more-challenging levels of performance or demonstration.

The process of reviewing collections of existing rubrics, joined with faculty expertise across the range of outcomes, has uncovered the extent to which there are similarities among campuses on core learning expectations. By identifying outcomes in terms of expectations for demonstrated student learning among disparate campuses, a valuable basis for comparing levels of learning through the curriculum and cocurriculum is emerging. This will be especially useful as students, parents, employers, and policy makers seek

By identifying outcomes in terms of expectations for demonstrated student learning among disparate campuses, a valuable basis for comparing levels of learning through the curriculum and cocurriculum is emerging

valid representations of student academic accomplishment, especially when the expected learning can be accompanied by examples of actual student work that tangibly demonstrate the learning.

The rubric teams have been developing each outcome since spring 2008. By late spring, three rubrics had been drafted. Those three rubrics were then pilot tested by faculty on some of the leadership campuses. Feedback from the first round of testing was used by the respective teams to engage in a second round of drafting and redrafting the rubrics. By fall 2008, drafts of the rubrics articulating the fourteen essential learning outcomes were in place. In early 2009, the new rubrics were piloted on both leadership and partner campuses

across the country. Currently, the second-round feedback is being used by the rubric development teams to redraft the rubrics once again. In late spring, the rubrics will undergo a third round of campus testing. A final "tweaking" of the rubrics will occur in early summer. Finally, the VALUE rubrics will be released for general use in summer 2009.

E-PORTFOLIOS AS THE MODE FOR PRESENTING STUDENT WORK

E-portfolios were chosen as the medium for collecting and displaying student work for three primary reasons: (1) there were sufficient numbers of campuses using e-portfolios for assessment of learning to represent multiple sectors and types of institutions; (2) it would be easier to share student work among campuses, faculty teams, and evaluators digitally than to transport groups of people; and (3) e-portfolios allowed learning to be presented using a broad range of media to capture the multiple ways in which we learn and can demonstrate our learning. E-portfolios provide both a transparent and portable medium for showcasing the broad range of complex ways students are asked to demonstrate their knowledge and abilities for purposes such as graduate school and job applications, as well as to benchmark achievement among peer institutions. To better ensure that judgments about student learning actually reflect the learning that occurs on our campuses, the student artifacts should be drawn primarily from the work students complete through their required curriculum and cocurriculum.

The e-portfolio is an ideal format for collecting evidence of student learning, especially for those outcomes not amenable to or appropriate for standardized measurement. Additionally, e-portfolios

TABLE 1: A draft VALUE project rubric used to assess students' critical thinking.

	4	3	2	1
Explanation of issues	Problem/issue relevant to situation in context clearly stated	Problem/issue relevant to situation stated and partially described	Problem/issue relevant to situation stated	Problem/issue relevant to a different situation identified
Investigation of evidence	Position is established with evidence. Source selection reflects some exploration across disciplines and integrates multiple media modes; Veracity of sources is challenged and mostly balanced. Source summaries and attribution deepen the position not just decorate it.	Position is supported by evidence, though selective (cherry picked), inconsistently aligned, narrow in scope and limited to one or two modes. Examination of source quality shows some balance; attribution (citations) documents and adds authority to position.	Position strengthened by supporting evidence, though sources are limited or convenient (assigned sources & personal stories only) and in a single mode (text, audio, graphs, or video, etc); Source use repeats information and absent contrary evidence. Attribution merely lists references, decorates.	Position is unsubstantiated, random. Limited evidence of exploration (curiosity) or awareness of need for information, search, selection, source evaluation & source attribution (citations).
Influence of context and assumptions	Position qualified by considerations of experiences, circumstances, conditions and environment that influence perspectives and the implications of those perspectives.	Position presented with recognition of contextual sources of bias, assumptions and possible implications of bias.	Position presented tentatively, with emerging awareness of own and others' biases, ethical and political, historical sources and implications of bias.	Position presented in absolutes with little recognition of own personal and cultural bias and little recognition of ethical, political, historical or other considerations.
Own perspective, hypothesis, or position	A reasonable, clear, position or hypothesis, stated or implied, demonstrates some complexity of thought. It also acknowledges, refutes, synthesizes, or extends some other perspectives appropriately.	A reasonable, clear position or hypothesis is stated or implied.Important objections and/or alternate perspectives are considered with some thought.	Position or hypothesis is clear, whether stated or implied, with at least one other perspective acknowledged.	Work contains a discernible position or hypothesis that reflects the student's perspective.
Conclusions, implications and consequences	Conclusions are based on a synthesis of evidence from various sources. Inferences about causal consequences are supported by evidence that has been evaluated from disparate viewpoints. Analysis of implications indicates some awareness of ambiguity.	Conclusions and evidence are relatively obvious, with synthesis drawn from selected (cherry picked) evidence. Assertions of cause are supported mostly by opinion and are also selective. Considerations of consequences are timid or obvious and easy.	Conclusions are weakly supported by evidence, with only emerging synthesis. Assertions of cause are doubtful. Considerations of consequences are narrow or exaggerated and dichotomous.	Conclusions are not supported by the evidence or repeat the evidence without synthesis or elaboration; tendency to confuse correlation and cause. Considerations of consequences are sketchy, drawn in absolutes, or absent.

Created by a team of faculty from higher education institutions across the United States

can facilitate student reflection upon and engagement with learning across multiyear degree programs, across different institutions, and across diverse learning styles while helping students to set and achieve personal learning goals.

The rubric development teams endeavored to craft language that would not be text bound, but open to use for learning performances that were graphical, oral, video, digital, etc. VALUE rubrics incorporate both the research on learning outcomes and the reality of today's college students, who work in a learning environment that includes technological, social, and extracampus experiences in addition to traditional classroom learning.

A FINAL PIECE OF THE PROJECT

Since it is important that the rubrics and the e-portfolio collections of student work serve both campus assessment and non-campus accountability purposes, VALUE will engage a set of national panels during the summer of 2009 to review the rubrics, use the rubrics to assess student e-portfolios, and provide feedback on the usefulness of the rubrics and the student e-portfolio. Three national panels will be formed:

- Panel One—A panel of faculty who are familiar with rubrics and e-portfolios, but who have not been involved in the VALUE project,
- Panel Two—A panel of faculty who are neither familiar with rubrics nor e-portfolio usage, and
- Panel Three—A panel of employers, policy makers, parents, and community leaders.

Each panel will use the same rubrics to assess the same set of student e-portfolios. The results of their reviews and their feedback will be used for the last "tweaking" of the rubrics, and as an initial indicator of the rubrics' ability to communicate similar meaning about quality of learning to very differently positioned sets of people.

CONCLUSION

The VALUE rubrics are meant to both capture the foundations of a nationally shared set of meanings around student learning, and to be useful at both general institutional and programmatic levels. The VALUE rubrics, as written, must then be translated by individual campuses into the language, context, and mission of their institution. Programs and majors will have to translate the rubrics into the conceptual and academic constructs of their particular area or discipline. Individual faculty will have to translate the rubrics into the meaning of their assignments and course materials in order for the rubrics to be used effectively to assess their student assignments.

However, as institutional versions of the rubrics are mapped onto the VALUE rubric criteria and performance levels, each level of the institution—individual faculty, disciplines, programs—can have confidence that their assessments are not idiosyncratic, but rather are made within a national understanding of learning expectation and its quality. This translation to the local parlance allows for the work of students and faculty on specific assignments in specific courses to not only serve the purposes of assigning grades and performance indicators in a course, but also for the same pieces of work and their assessment to be sampled and/or aggregated for program-review or assessment purposes, and ultimately at an institutional level. Through this deconstruction process, the rubrics become useful to faculty and students on the ground on a day-to-day basis for moving through a course of study. Through aggregating and sampling, the exact same work can also be used to provide a macro review of student learning without having to start anew or devise separate modes of gathering assessment data. Multiple purposes and needs can be met through shared, layered, and textured rubrics, facilitating both formative assessment for learning and assessment for accountability reporting.

Through use of these rubrics—which set up explicit expectations for learning—students will develop the ability to reflect on their learning and assess their progress, their strengths, and their weaknesses as they move along their educational pathways.

As stated earlier, VALUE is a first step, a proof of concept. At a point that is two-thirds of the way through the project, the evidence suggests that we can talk about a shared understanding of learning across a broad range of outcomes and at increasingly more challenging levels of performance. We are learning that assessment of student learning can be rigorous, effective, useful, and efficient. We do not need to create episodic, artificial tests to demonstrate the effectiveness of our colleagues, our institutions, or our students. There is integrity and validity in portfolio assessment that can lead to rich evidence of student learning for accountability demands, and at the same time encourage improvements in teaching and learning for faculty and staff. Perhaps most important, this process can allow students to develop their own abilities to engage in self-assessment and meaning making. ▪

The Benefits of E-portfolios for Students and Faculty in Their Own Words

▸ **Ross Miller,** senior director of assessment for learning, Association of American Colleges and Universities

  Wende Morgaine, VALUE initiative manager, Association of American Colleges and Universities

A well-executed e-portfolio program is an incredible tool for higher education. They provide institutions with authentic assessments of student learning and promote the deeper learning that we want for our students. I don't understand why more institutions aren't using them.

Candyce Reynolds, associate professor, Post-Secondary, Adult, and Continuing Education, School of Education, Portland State University

From matriculation through graduation, the goals for expected student learning are wide-ranging and ambitious. After reviewing mission statements from multiple institutions, examining various accreditation guidelines, and interviewing business and community leaders, AAC&U has found consensus among these resources that college learning should include broad knowledge, powerful intellectual and practical skills, personal and social responsibility, and the ability to integrate years of learning into a connected, functional whole. The search for ways to foster and document such complex learning for all students has led some campuses to develop e-portfolios as teaching, learning, and assessment tools. Those institutions are now discovering how to use e-portfolios to inform the process of improvement from the individual student level up to the institutional level.

Students generally use e-portfolios to collect their work, reflect upon strengths and weaknesses, and strive to improve. Equally beneficial are the data that *faculty, departments, and institutions* derive when they assess the work in portfolios, reflect upon it in curricular contexts, and use the data and reflections to plan for improvement. E-portfolios provide a rich resource for both students and faculty to learn about achievement of important outcomes over time, make connections among disparate parts of the curriculum, gain insights leading to improvement, and develop identities as learners or as facilitators of learning.

The increasing use of e-portfolios on campuses naturally raises questions about their impact and effectiveness. Through the Valid Assessment of Learning in Undergraduate Education (VALUE) project, we have collected reflections on e-portfolio use from both faculty and students that detail their reactions. These reflections come from campuses experienced with e-portfolios and selected for participation in the VALUE project. We believe that they represent some of the common benefits of well-run e-portfolio programs.

Good e-portfolio practice always includes the processes included within the broad concept of metacognition—having students reflect on their work and think about their progress in learning. Bransford, Brown, and Cocking (2000; 18, 21) call metacognition "an internal conversation" in which students monitor their own understanding and state that teachers should explicitly emphasize metacognition because it "can enhance student achievement and develop in students the ability to learn independently." E-portfolios provide rich opportunities for metacognition through periodic (and often required) reflections which may help students develop an array of outcomes and skills. Reflection on work saved in e-portfolios can

- build learners' personal and academic identities as they complete complex projects and reflect on their capabilities and progress,
- facilitate the integration of learning as students connect learning across courses and time,
- be focused on developing self-assessment abilities in which students judge the quality of work using the same criteria experts use,

- help students plan their own academic pathways as they come to understand what they know and are able to do and what they still need to learn.

The reflections of students and faculty below mention these and other outcomes. Reading about the experiences that students and faculty have with e-portfolios, one begins to understand why so many campuses are exploring e-portfolio programs.

STUDENT VOICES

The e-portfolio experience gave me a chance to find out about the skills I should be learning in college and there are ways that I can keep track of how I am doing. I was not taught how to think in terms of outcomes of skills so it was kind of challenging at first. When I was trying to figure out what types of knowledge, skills, or abilities I had learned from volunteer or internship experiences, it was very helpful to go to the Pathways Outcomes in my e-portfolio and think about how they applied to the experiences I was writing about for my public portfolio.

Third-year student,
University of Michigan

Structured reflections helped this student analyze her learning experiences to reveal and understand outcomes that might otherwise have been missed. While course syllabi and college catalogs may declare what learning is supposed to take place, the structured reflection required for an e-portfolio can push students to "own" learning outcomes when they describe their progress and cite specific evidence of learning within their collections of work.

I have had many amazing experiences at Michigan, but I didn't really know what they meant or how they all fit together…. Now, I see patterns and themes in the work I have been doing, how things fit together. The work I've been doing actually makes sense… there has been

some direction to it all along. I also realize that my work is a reflection of me and that my identity and background [an African-American woman growing up in Detroit] have always played a part in my learning…I see how I have already made a difference in my communities.

Third-year student,
University of Michigan

This student writes about integration of learning—"how things fit together"—resulting from e-portfolio and reflection. She also refers to her growing self-knowledge and confidence in her ability to work effectively in different settings.

I didn't know what an e-portfolio was when I first heard about it in class….My professor suggested to me that I develop the "about me" section of my e-portfolio because there, I would have the opportunity to write more about myself and so I did. In that first e-portfolio I wrote about Palmira (Valle), the city where I was born in Colombia, and I wrote about Medellin, where I used to spend my vacations of school….and I wrote about the cultural assimilation process I was going through.

The second time I was asked to develop my e-portfolio, I had a lot more to share. I was in third semester at LaGuardia and I had already taken most of the classes connected to my major, so I decided include my academic work and goals that would make my family proud of me…. my priority was to focus on my personal growth in my schoolwork and what I was learning at LaGuardia. After putting up my projects in my e-portfolio, I then started to think more about my future and my career.

Now, with more knowledge of computer programs for developing Web pages, I decided to use my e-portfolio as an opportunity to show and demonstrate all the skills that I have learned throughout my journey at LaGuardia Community College….All together, my

third e-portfolio demonstrates me as a professional who is looking toward her future and who has many goals to reach.

Not only have I gained technical skills, but I've learned how to express myself as a serious student and a hard worker. The different sections of my e-portfolio made me realize the important things about how I see myself starting at LaGuardia, how I see myself now and in my future. My experience with e-portfolio at LaGuardia has made me see more of whom I want to be and how I can accomplish my goals.

Student,
LaGuardia College

E-portfolios can be used for different purposes that may shift as students move through their programs. This community college student consciously (with professor guidance) began with self-exploration and expression (the "about me" section of her e-portfolio), moving on to communicating her learning and academic goals to her family. Finally, she emphasized professional aspects of learning by posting her most valued work from her major to represent her significant achievements and learning over time. This essay shows impressive development and self-awareness as the student takes control of her personal, academic, and professional planning and accomplishments.

I feel that the process has enhanced my understanding of the overall higher education experience….I have always felt confused and irritated by the lack of connection between my general education requirements and my core department requirements. I think that the e-portfolio is a great way to link the two types of classes that you take during your time at Portland State. I am a very visual person and the template of the e-portfolio was easy to follow and it truly helped to achieve the goal of linking my personal work to my personal goal. I also believe that this process was very empowering

for me. It is easy to get discouraged with work that you complete during classes because you complete a paper, receive a grade, and then that paper is simply stored in a folder on your computer. This process helped me to look back on the work that I had completed in prior classes and place more value on the work that I had created. I was able to value the work because each assignment that I complete I have taken one step closer to completing a personal or professional goal of my own. It was encouraging to see that I was not attending classes just to receive a piece of paper that declares I graduated from college, I was attending college for my own personal and professional growth.

Student,
Portland State University

Reflection can be an awakening for students and serves to distill the meaning from experiences

The student who wrote this statement has realized a number of benefits from the e-portfolio experience. The integrative function is highlighted in the comments about connecting general education requirements with learning in the major. The structure and even the appearance of the portfolio template helped to organize the student's thinking and enhance his academic planning—"linking personal work to my personal goal." There is the realization that by creating a collection of completed assignments and looking back through the collection for coherence and meaning, one better understands progress toward goals and learns to appreciate the work. Finally, there is the very powerful realization that going to college is about more than the degree—the learning is important and, upon reflection, makes sense.

I didn't realize the importance of the work I was doing… all the communication skills I was learning while doing research.… When I had a chance to reflect on it and was asked to describe the experience to others in my e-portfolio, I realized that I had learned a lot more than I thought. I was so focused on getting into business school, that if I had not had the space to stop and reflect on my experiences, I would have never known how I much I actually gained from everything I did my first year.

Second-year student,
University of Michigan

Reflection can be an awakening for students and serves to distill the meaning from experiences. Referring to a music performance of variable quality, a teacher of one of the authors once said "there's gold in that gravel." Reflection is like panning for gold, finding the valuable nuggets from among the gravel of day-to-day campus experience. Even for students with a focus on goals, as seemed to be the case for this student, pausing to reflect proved to be critical to making valuable learning conscious and more likely to be used in the future.

FACULTY VOICES

Student perceptions of learning could, of course, be questioned as self-serving or inaccurate—they are, after all, not direct evidence of learning. However, faculty working with students who are building e-portfolios and reflecting upon the work in them confirm the same kinds of learning that students claim.

At the University of Michigan, first-year organic chemistry students receive honors credit for participating in weekly, two-hour, peer-led "studio" sessions. Third- and fourth-year students who excelled in the courses previously lead these sessions, and are under my direct supervision. These peer teachers are all extremely positive about the integrative e-portfolio process. At our weekly leaders meeting last night, they launched into a discussion (without being solicited) about the value they are getting from the structured reflection exercises... both in terms of their teaching and (I suspect what I am hearing) on their overall college experience. They seem to benefit from being asked to explicitly think about how their teaching/leadership experiences can be transferred into other aspects of their lives. I have been mentoring a comparable group of student leaders since 1994, and I am noticing that this group seems to possess a degree of maturity as teachers/leaders that is higher than any of the groups from years past. I usually have to prod them a bit throughout the term to (a) think through the various challenges they are encountering, and (b) step up to the leadership position each week as the facilitator for our weekly dinner meetings. This group seems to need very little guidance from me. I think this is all rather impressive, given that we are yet only four to five weeks into the semester! I look forward to learning more about how they change as a result of the process.

Brian P. Coppola, Arthur F. Thurnau
Professor of Chemistry, associate chair,
Department of Chemistry, codirector of the
IDEA Institute, University of Michigan

The independence and speed of learning of these students are noteworthy and it would be especially interesting to investigate whether subsequent groups of leaders benefit in similar ways from their portfolio experiences. This professor also notes that these students have enhanced their ability to transfer learning to new situations.

A different group of student leaders at University of Michigan were transformed in several ways through building e-port-

folios and reflecting upon their work and experiences. This professor notes integrative, goal setting, and personal understanding outcomes for students.

Student leaders at the University of Michigan say in focus groups and individual interviews that what is most lacking in their education is making sense of the myriad activities, community work, research, and coursework with which they engage. This generation of college students describes themselves as "doers." These leaders know, however, that "doing" as a substitute for "thinking and integrating" has not served them well. A group of these leaders were among the first students at Michigan to pilot Michigan's integrative leadership e-portfolio in a semester-long course that taught them how to identify and integrate different types of knowledge (tacit and explicit) through a process of dialogue, reflection, connection and demonstration. They had no trouble listing activities on and on-off campus as well as courses that had been important to them. The challenge was in extracting meaning from their work and how they could best connect, indeed produce, their current goals, personal philosophy and a coherent understanding of the knowledge and skills they possessed. These students met the challenge largely through a process called generative interviewing (a method of knowledge retrieval that is part of the e-portfolio process) in which they were guided and learned to guide each other to extract meaning and connection. The students who have participated in these early pilot courses have described them as "transformative."

Patricia Gurin, Nancy Cantor Distinguished University Professor, Arthur F. Thurnau Professor of Psychology and Women's Studies, Professor Emerita, College of Literature, Science and the Arts, University of Michigan

Faculty, of course, are responsible for designing and assessing the assignments that may be included in students' e-portfolios. Considered from a learning-centered perspective, assignments define outcomes through what we ask students to do, foster outcomes during the process of being completed, provide opportunities for formative and/or summative assessment, and generate data on student learning that can be analyzed for ways to improve student learning. Given the time and effort spent by teachers and students alike on assignments, it makes sense to get as much out of each piece of student work as possible. From what students write about looking at their own work in e-portfolios, it is clear that they can continue to learn from assignments through guided reflections even after the assignments have been completed and graded. Faculty, programs, and institutions can also learn

about student achievement through reflecting and assessing student assignments sampled from e-portfolios.

While not directly telling how her campus uses e-portfolios for program assessment, an associate dean conveys the wealth of information that lies within the e-portfolios built by students on her campus. She also makes clear that e-portfolios facilitate learning and reflection is key to the process.

If what we want is to deepen learning and to facilitate transfer of knowledge, for the first time, e-portfolios provide a strategy that allows students to archive

their work over time. The critical part is that they also use those artifacts for intentional and promoted reflection that supports connecting the learning across courses and disciplines and to their own lives and passions. In this way, e-portfolios become a scaffold of learning experiences from the curriculum and the cocurriculum that students use to demonstrate and articulate the increasing sophistication and complexity of their understanding and thinking throughout their educational career and beyond.

Judith Patton, associate dean, School of Fine and Performing Arts, Portland State University

Left unsaid is that Portland State University (PSU) has a periodic assessment process in which groups of faculty read student work sampled from e-portfolios to see to what extent students are

From what students write about looking at their own work in e-portfolios, it is clear that they can continue to learn from assignments through guided reflections even after the assignments have been completed and graded

achieving university general education goals. This process is a kind of structured reflection for faculty on student achievement, course goals and assignments and serves to guide subsequent planning and teaching. Rotating through a couple of university goals each year, PSU has a process that takes advantage of the wealth of information waiting to be analyzed and interpreted within collections of student work. They wisely limit the amount of student work assessed at any one time so that the process is manageable. Faculty from other campuses also recognize the mutual benefits to students and faculty.

A campus, with e-portfolios in place as flexible space for faculty and students to archive and synthesize their work, is well-positioned for assessment. Reflection on e-portfolios of collected works is where the evidence of learning emerges. Students may not understand the significance of e-portfolios as they begin their college career, but they will begin to understand their own disparate learning by the time they are finishing their four-years of collection of academic works.

Judith Kirkpatrick, professor,
Kapi'olani Community College

At Kapi'olani a study of the e-portfolio process focused on whether courses were more student-centered and if the e-portfolios assisted in integrating students' academic, career, and personal work with a stage of growth in understanding Hawaiian values. The research team designated first-year composition and second-year Hawaiian language courses for the research study, and included a control class for first-year composition. The researchers administered two instruments, the Learning and Study Strategies Inventory (LASSI), and the Nā Waʻa E-portfolio Survey, and analyzed the students' reflective learning analyses to explore whether the approach is truly learning-centered. Initially, instructors began the project with the hopes of transforming their students into more independent learners. At about mid-semester, the instructors realized they were transforming the way they teach.

E-PORTFOLIOS AS A GUIDE FOR TEACHING AND LEARNING

As students enter college, most do not imagine being responsible for their own learning. They believe that, somehow, teachers make them learn or, in some cases, prevent them from learning. Many even see assignments, required courses, and exams as obstacles to get around on the way to their ticket to the future—the degree. While there has been talk for many years about professors moving from "sage on the stage" to "guide on the side," e-portfolios are developing as a teaching/learning context where this is likely to happen. The practices associated with e-portfolio—e.g., designing "authentic" assignments, using engaging and active pedagogy, periodic self-, peer- and teacher-formative assessments, and requiring students to reflect on their learning—help to move *both* professors and students into a teacher/learner relationship where "guiding" really works. Emphasis shifts from delivering content toward coaching and motivating students as they try to solve problems that are of genuine interest to disciplines, professions, or communities. While additional research will be completed on e-portfolios *per se*, there is already promise in the fact that good e-portfolio programs use a combination of practices already shown individually to be effective in helping students learn. (See, for example, research on such practices in Bransford, Brown, and Cocking [2000]).

E-portfolios are gaining support as a way for students, faculty, programs, and institutions to learn, assess, and improve through a mutual focus on the work that students complete over time—work that can both facilitate and document a range of ambitious learning outcomes. ∎

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AAC&U MEETINGS

SUMMER INSTITUTES

INSTITUTE ON GENERAL EDUCATION AND ASSESSMENT
May 29-June 3, 2009
University of Minnesota

GREATER EXPECTATIONS INSTITUTE
June 17–21, 2009
University of Vermont

ENGAGING DEPARTMENTS INSTITUTE
July 8–12, 2009
University of Pennsylvania

NETWORK MEETINGS

EDUCATING FOR PERSONAL AND SOCIAL RESPONSIBILITY: Deepening Student and Campus Commitments
October 1–3, 2009
Minneapolis, Minnesota

INTEGRATIVE LEARNING
October 22–24, 2009
Atlanta, Georgia

GENERAL EDUCATION AND ASSESSMENT
February 18–20, 2010
Seattle, Washington

SHAPING FACULTY ROLES
March 25–27, 2010
Philadelphia, Pennsylvania

Moving Beyond a National Habit in the Call for Accountability

▸ **Peggy L. Maki,** education consultant and assessment and accreditation specialist

D uring and after the heated exchanges that led to the 2008 Higher Education Act, standardized tests were, not surprisingly, proposed as the "first response" to document college and university accountability for student learning. Policy makers and decision makers were especially responsive to this effort, believing they then could efficiently compare institutions and fill out the report card for state-by-state educational performance based on a sample of students' performance on national instruments. Efficient discussions about student scores could, in turn, spawn state and federal policies. With some exceptions, tests—aptitude, achievement, placement, certification, entry-level, for example—have dotted our educational and professional lives from the moment we entered formal education. Let's face it: testing is a national, even international, habit—a first-response solution to questions about student achievement—because it enables quick and efficient judgments, including policy makers' decisions.

DEMONSTRATING STUDENT LEARNING THROUGH STANDARDIZED TESTS

Some institutions immediately chose to conform to the first-response solution—maybe even to remove the accountability issue as a central institutional concern—using existing standardized instruments to demonstrate their students' general education learning, i.e. the Collegiate Assessment of Academic Proficiency (CAAP), the Measure of Academic Proficiency and Progress (MAPP), or the Collegiate Learning Assessment (CLA), a newer standardized test that takes a performance-based approach in its critical and analytical thinking and writing instruments. (Though the developer of the CLA did not originally develop its tests to be used as national instruments to compare institutions' performance, but as instruments an institution could use along

with other sources of student learning evidence to take stock of its students' learning, nonetheless, the CLA sought to become the national gold standard to compare institutions' educational quality.)

Among higher education organizations, the Association of Public Land-Grant Universities (APLU), formerly the National Association of State Universities and Land-Grant Colleges (NASULGC), and the American Association of State Colleges and Universities (AASCU) proposed that its member institutions voluntarily post scores from students' performance on either the MAPP, CAAP, or CLA under its Voluntary System of Accountability (VSA). These scores are included in VSA's College Portrait of Undergraduate Education Web site as one of the informational components about its institutions. These components are presented in a way that assists parents and prospective students to learn more about institutions they are considering (www.collegeportraits.org/guide.aspx). Although the site offers institutions the option to post other student achievement information, the College Portrait site is designed for comparisons among its schools. Thus, for example, data that lend themselves to numerical representation are presented— retention rates, graduation rates, results of student surveys, and now standardized tests scores for students' general education learning as a primary indicator of educational effectiveness. Measured at the institution level only, average test scores of seniors (for example, CLA recommends sampling one hundred freshmen and one hundred seniors for four-year institutions) are compared with those of freshmen to represent students' learning gains at an institution. A score of sample students' achievement is becoming, then, a way to brand institutions' educational effectiveness as well as a way to compare institutions. In defense of the current use of standardized tests among institutions participating in the VSA, David E.

Shulenburger, vice president for academic affairs at APLU, argues that use of an "outcomes test creates a rough comparability among participating universities and enhances public accountability" (Lederman 2009). "Rough comparability," based solely on a sampling of students, unfortunately, leads to public constituencies' crystallized judgments and decisions about the overall educational quality of our colleges and universities. Informed decisions and judgments come from more than one source of evidence.

To date, approximately three hundred of the five hundred member public institutions have joined the VSA or have been mandated to join. Others have not made up their minds; still others are resisting. These institutional decisions are important. If campuses rely solely on the scores from standardized tests focused on only two or three outcomes taken by a sample of students, which then become the national standard upon which students,

All students do not progress at the same rate, learn the same things at the same time, or represent their learning the same way; yet, standardized tests demand that test takers perform within an instrument's closed universe of "measurable responses"

parents, legislatures, policy makers and other stakeholders make judgments and final decisions about the educational effectiveness of our colleges and universities, that straitjacket will lead to misrepresentations, oversimplifications, and overgeneralizations about our institutions' educational effectiveness, aims, and expectations. In turn, state and federal policy makers and legislatures will deliberate and act based on the limitations of a single source of evidence—again based on a sample of students taking a ninety-minute test.

STANDARDIZED TESTING LIMITATIONS

What are some of those major misrepresentations, oversimplifications, and overgeneralizations? For starters, how well a sample of students taking these tests truly represents the diverse learners in an institution is questionable. There really is not a "typical" learner at most of our institutions; there are various kinds of learners who enter with different life experiences, learning histories, cognitive levels, levels of understanding and misunderstanding and misconceptions, and motivation. At no time in the history of higher education have we seen such diversity in our student population: the demographics of our community colleges and four-year institutions include, for example, developmental, transfer, first-generation, international, full-time, full-time and working, part-time and working, international, non-native-English speaking, distance, nontraditional-aged, traditional-aged, learning disabled, and honors students—to

name a few. Realistically, there are different levels of student performance across an institution based on students' readiness, motivation, abilities, levels of understanding and misunderstanding.

All students do not progress at the same rate, learn the same things at the same time, or represent their learning the same way; yet, standardized tests demand that test takers perform within an instrument's closed universe of "measurable responses." How can these test results capture the levels of achievement and progress of our

diverse learners, given that each student has a different entry point of learning, different learning history, motivation, readiness, and sets of abilities? Where are the accompanying data about our diverse learners? How and when did they enter our institutions? How well did they progress or not? Why; how well did they achieve by the time they graduated given where they began their journey? Unlike Olympic competitors who have gone through numerous elimination trials to reach the starting line for the final challenge of their careers, students at the higher education starting line do not all have comparable abilities, educational histories, expectations or motivations. Thus, generalizations about "students' performance" based on a small sample of students misrepresent our diverse learners' range of achievement and levels of progress, leading to overgeneralizations about the educational quality or effectiveness of our institutions.

Further, how institutions manage to round up students to take an externally designed test, besides mandating the test in a course or at a designated time, leads to questions about just how completely representative those test takers are and about how seriously the final set of test takers is committed to performing on an instrument that is not personally relevant to them. If institutions use different strategies for recruiting their student sample, then how well do those students' performances represent a comparable set of students across our institutions? If an institution presents a high achievement score the first time around but the score declines after a second round of tests years later, does that score mean that an institution's educational quality has declined even though the same educational practices that accounted for the first round are essentially unchanged? Do variations in scores over cycles represent what a particular sample of students happened to perform on a given day but not necessarily represent the range of achievement levels at an institution? Over-simplifications will abound.

Developing the practice of using standardized tests results based on a sample of students to reach quick conclusions about educational effectiveness, as could easily occur in the world of federal and state policy makers, also misrepresents the aims, expectations, and educational processes and practices at our colleges and universities. Reducing learning to what can be easily measured or easily simplified to a metric diverts external audiences' focus away from the authentic work that students produce along the continuum of their learning as well as at the end of their careers. Capstone projects, research projects and papers, team work, lab reports, proposals, creative products in the visual and performing arts, practica, internships, and community service projects, for example, demonstrate not only how students apply their learning, but also how they integrate knowledge, abilities, habits of mind, ways of thinking and problem solving, ways of behaving or responding. Presented with results that are "easy" to measure, public constituencies lose sight of these more complex representations of learning that include or integrate the general education outcomes that current tests measure in isolation, such as critical thinking, writing, quantitative reasoning, and ethical reasoning. Deconstructing learning into skill sets does not realistically represent how students actually think, act, solve problems, engage questions, take risks, propose new ways of looking at a problem, create an original work, or design research. That is, students draw from a repertoire of strategies and ways of knowing represented in their work.

REALISTIC EVIDENCE OF STUDENT LEARNING

We need more robust and realistic evidence of our diverse students' learning achievements and levels of achievement than standardized instruments can provide. Can colleges and universities publicly account for their students' learning in a way that represents their diverse learners and their level of achievement while respecting their various missions, student demographics, educational practices, and philosophies? Is there an alternative to the national testing habit that can also humanize student achievement within our institutions' contexts?

Advancing a new model that can respond to accountability demands and yet recognize our diverse college and university missions and purposes, their students, and educators' practices is the Association of American Colleges and Universities (AAC&U). Building on institutions' growing commitment to assess students' learning, required by national, regional, and specialized accreditors, AAC&U's Valid Assessment of Learning in Undergraduate Education (VALUE) project is now changing the national conversation about how institutions can present their students' achievement levels (www.aacu.org/value). Part of a FIPSE grant awarded to AAC&U, APLA, and AASCU, this national project provides external audiences with another lens through which they can gain a realistic and robust representation of student achievement. This national project builds on the ongoing work across our campuses: using collaboratively designed criteria and standards of judgment—scoring rubrics—to assess student work. By analyzing the results of scoring rubrics applied to students' work, educators can track how well students are achieving or do achieve program or institution-level expectations for learning in general education and in students' major programs of study. Results are collaboratively discussed in terms of students' patterns of strength and weakness. Patterns of weakness in student achievement become the basis for determining ways to improve performance levels through changing pedagogy, curricular design, or educational practices or policies. AAC&U has now taken

this assessment practice to a national level. Faculty teams at twelve leadership and fifty partner campuses across the United States, ranging from community colleges to four-year institutions, have developed fourteen national scoring rubrics for general education outcomes identified by AAC&U as the "essential learning outcomes" of contemporary undergraduate liberal education, described in its publication *College Learning for the New Global Century.* These essential learning outcomes and a set of "Principles of Excellence" provide a new framework to guide students' cumulative progress through college. Other organizations, e.g. the Partnership for 21st Century Skills, found the need for a much broader set of outcomes than existing tests currently measure (Partnership for 21st Century Skills). Within the AAC&U framework students should be able to demonstrate in increasingly complex ways the following fourteen essential learning outcomes within the work they produce:

- inquiry and analysis
- critical thinking
- creative thinking
- written communication
- oral communication
- quantitative literacy
- information literacy
- teamwork
- problem solving
- civic knowledge and engagement— local and global
- intercultural knowledge and competence
- ethical reasoning and action
- foundations and skills for lifelong learning
- integrative learning

ASSESSMENT THROUGH RUBRICS

Each of these outcomes is further broken down into criteria descriptors that list the attributes, qualities, or abilities students are required to demonstrate in work that

focuses on this outcome or incorporates this outcome. Students' demonstration of these qualities is scored against descriptive performance levels. In contrast to norm- based tests, the results of which are used to compare or rank students (as would be the ultimate aim of using standardized tests to compare institutions' educational quality), the results of scoring rubrics enable both a faculty member or other educator at the institution to view students' performance against criteria revealing students' patterns of strength and weaknesses. Scoring rubrics represent the dimensions of learning characteristic of a learning outcome such as writing, problem solving, and critical thinking. And they provide educators with evidence of how well students execute the components of an outcome. For example, in the current draft of criteria for critical thinking, students need to demonstrate in their work how well they (1) explain an issue or problem; (2) investigate evidence; (3) qualify the influence of context and assumptions in an issue or problem; (4) present their own perspectives, hypothesis, or position on an issue or problem; and (5) present their conclusions, as well as the implications and consequences of their conclusions.

In addition, students are representing their achievement levels not only in general education or core courses, but also at higher levels of performance in their major programs of study in culminating work such as capstone or senior products, research projects, and other representative professional contexts.

The first version of these fourteen national scoring rubrics is currently being piloted across twelve lead institutions, as well as other institutions that are joining the project. The first pilot results will lead to a second draft of national rubrics; a second draft will undergo the same pilot process leading to a third and final draft of these fourteen rubrics that will

be nationally available for colleges and institutions to apply to their students' work. Representing accountability for student achievement through the VALUE alternative recognizes current institutional efforts to identify patterns of strength and weakness in student work against nationally agreed-upon criteria and standards of judgment. This project also respects the diverse ways in which students represent or demonstrate their learning along the continuum of their studies leading to graduation. Lower than expected patterns of performance promote dialogue across a campus to identify ways to improve student achievement, leading to advances in pedagogy, curricular design, and educational practices and policies.

VALUE represents a humanizing alternative to the national habit of tests, demonstrating the ways in which students represent their learning through their work and through an open universe that permits diverse ways of representing learning and the levels at which diverse learners achieve. Therein lies the essential difference between the national habit of standardized instruments and VALUE: representation of the dimensions of students' general education learning within the context of educational practices and the work that students produce. Learning, after all, is not simply a process of pouring information into individuals. It is a process through which students construct their own meaning. Learners learn differently, use different strategies, and represent their learning in different ways.

The VALUE project alternative is not consonant with the way most decision makers and policy makers think, know, and act. In fact, it challenges them to change the evidence they are most comfortable using and change the ways in which they view that evidence. For example, those pressing for national tests, such as Charles Miller, former head of the Spellings Commission, who view this alternative as

flawed (Lederman 2009), argue that we rely on standardized tests in our educational system; therefore, higher education should continue to use them to represent our own educational results. Perhaps many of those individuals have not followed an emerging pattern across the United States: currently approximately 775 colleges and universities, including highly selective ones, no longer require the SAT or ACT to make admission judgments about their applicants (www. FairTest.org). That is, they have come to the conclusion that tests are an incomplete way of representing individuals and predicting their success. Perhaps, as well, those who wish to establish national testing as a means to make decisions about institutional quality may not be spending time on our campuses. If so, they would readily see that tests are no longer our sole means of evaluating students. A wide range of assessment methods are used across our campuses, such as virtual simulations, case studies, wikis, online journals, lab reports, and internships, to name just a few. These methods become the basis of grading. In addition, as VALUE recommends, e-portfolios will become the means for students across the country to store and build on their work. E-portfolios will also then contain work that can be systematically assessed using agreed-upon scoring rubrics.

Charles Miller also recently argued that the AAC&U project, though praiseworthy, does not provide the "quantitative and comparable" evidence of student learning that would serve the "public purposes" he sees (Lederman 2009). One of those "public purposes" is preparing students to enter the workforce. Results of a 2008 employer survey commissioned by AAC&U revealed that employers prefer evidence of student achievement based on the authentic work they produce, as opposed to standardized test scores. Specifically, the results of a 2008 survey of employers concluded:

When it comes to the assessment practices that employers trust to indicate a graduate's level of knowledge and potential to succeed in the job world employers dismiss tests of general content knowledge in favor of assessments of real-world and applied-learning approaches. Multiple-choice tests specifically are seen as ineffective. On the other hand, assessments that employers hold in high regard include evaluations of supervised internships, community-based projects, and comprehensive senior projects.

Employers' emphasis on integrative, applied learning is reflected in their recommendations to colleges and universities about how to assess student learning in college. Again, multiple choice testing ranks lowest among the options presented, just below an institutional score that shows how a college compares to other colleges in advancing critical thinking skills. Faculty evaluated internships and community-learning experiences emerge on top. Employers also endorse individual student essay tests, electronic portfolios of student work, and comprehensive senior projects as valuable tools both for students to enhance their knowledge and develop important real-world skills, as well as for employers to evaluate graduates' readiness for the workplace (Peter D. Hart Research Associates 2008).

MOVING FROM A TESTING MODEL TO THE VALUE MODEL

If we shift our focus on accountability from standardized test scores to performance against national scoring rubrics applied to student-generated work, we can open national dialogue about "what counts" for evidence of our students' achievement. We can provide evidence of levels of achievement in writing, creativity, and problem solving, for example, across the different ways in which students represent those outcomes—from written work to visual work to virtual work. With an agreed-upon set of essential outcomes for general education in higher education, accompanied with nationally shared and agreed upon criteria and standards of judgment, we can work together with our public constituencies to identify ways to present our results within the context of our institutions, their missions, and their learners.

Moving from a testing model to the alternative VALUE model may, in fact, lead higher education and our public constituencies into new modes of inquiry about student learning and new ways to make judgments and decisions about educational quality across the country. Consider two possible scenarios that could emerge from the VALUE project:

- Creation of a coalition of representatives from business, government, industry, accreditation, students, parents, educators from P-20 and two-year and four-year institutions charged with designing a way to represent our students' general education learning based on the VALUE scoring rubrics. To this end, consideration should be given to the potential of the current commercial assessment software systems that institutions are already using. These systems already store accrediting standards and now could also store the VALUE rubrics. Questions about the objectivity of internal scoring could be addressed by uploading student work for external reviewers to score. In addition, these software packages are able to represent assessment results at many different levels: course, program, institution. And, they can aggregate and disaggregate results for various audiences and purposes.
- Creation of regional and national learning communities that share results of the application of VALUE scoring rubrics in the national interest of learning about pedagogy, educational practices and policies, and curricular design that foster high-level student achievement in general education outcomes. The aim of these learning communities would be to position institutions to learn from each other about practices that foster high achievement among diverse learners as well as disseminate that knowledge.

AAC&U has worked to set the national agenda for a new conversation about educational quality among our institutions and our public constituencies. VALUE represents a way to view accountability that realistically represents the strengths and weaknesses that educators see in their own students. Higher education is not refusing to provide evidence; it wants to present it within a context that prevents misunderstanding, misrepresentation, and oversimplification. It now remains for external constituencies to join a collaborative conversation about ways in which higher education can realistically represent its students' achievement. ▪

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E-portfolios at 2.0—Surveying the Field

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Last spring, Kathleen Blake Yancey suggested that e-portfolios were a leading element in a "tectonic shift" in higher education. Yancey, the Kellogg Hunt Professor of English at Florida State University and former president of the National Council of Teachers of English, spoke to hundreds of e-portfolio practitioners gathered at a landmark e-portfolio conference held at LaGuardia Community College in 2008. She argued that e-portfolios radically alter how students learn, how faculty teach, and how institutions assess the value of their educations—that e-portfolios are literally remaking the landscape of higher education. (See Yancey's article on page 28 in this issue of *Peer Review*)

This is a bold claim. However, the e-portfolio movement has grown dramatically in significance over the past decade. Linked to sweeping economic, demographic, political, and technological changes, the e-portfolio is an increasingly salient feature of the changing educational landscape.

At this point, hundreds of thousands of educators around the world know that e-portfolios are digital collections of student work, defined by the mantra: collect, select, and reflect. No precise count of the number of e-portfolio initiatives in higher education has been established, but available evidence suggests that the number is high. The ePortfolio Consortium lists 894 institutional members, nearly 60 percent of them American colleges and universities. In April 2008, the Making Connections Conference: ePortfolios, Integrative Learning and Assessment, held at LaGuardia Community College in New York City, drew six hundred attendees from seventy different colleges and universities in thirty different states. According to a 2008 study by the Campus Computing Project, just over 50 percent of public and private universities and public four-year colleges now offer some form of an e-portfolio to their students. Across all higher education sectors, the study shows, the use of e-portfolios has tripled since 2003.

THE FOUR MAJOR DRIVERS OF E-PORTFOLIO USE

The e-portfolio movement's sweeping growth in the past ten years has four major drivers. The first is pedagogical change in higher education, a growing interest in student-centered active learning. Innovative teaching methods value student reflection and emphasize the importance of helping students develop metacognitive skills. Defining students as authors who study their own learning transforms the traditional academic power structure, asking faculty to work alongside students as colearners. Connecting across disciplines and semesters, linking the classroom to lived experience and broad life goals, e-portfolios respond to the growing movement in integrative learning.

The second force is the dynamism of digital communication technologies. The technological capacity to document and publish diverse forms of student learning has grown dramatically in recent years. Web-based technologies make portfolios accessible and adaptable. In an age of multimedia self-authoring, student interest in creating rich digital self-portraits has grown exponentially. As evidenced by the popularity of sites like Twitter and Facebook, a digital portfolio for student learning speaks the language of today's student body, made up overwhelmingly of millennials who came of age using social networking sites. Discourse around educational technology has been energized by emerging digital tools for distributive communication and exchange, often talked about as Web 2.0; and e-portfolios in many ways prefigure the emerging emphasis on user-generated content (Bass and Eynon 2009).

The e-portfolio movement has also been spurred by the pressure for increased accountability in higher education, symbolized by the 2007 Spellings Commission on Higher Education, which critiqued universities for not providing stakeholders with accessible and comparable measures of student learning. K. C. Green, of the Campus Computing project, attributes the rapid growth of

e-portfolios in part to their use for outcomes assessment, including the portfolio requirements for the National Council for Accreditation of Teacher Education (NCATE) (Green 2008). Documenting and organizing student work and linking it to institutional or disciplinary competencies, e-portfolios can facilitate a more classroom-based and faculty-driven alternative to traditional assessments focused on standardized testing.

Finally, the e-portfolio movement also responds to increasing fluidity in employment and education. At a time when multiple career shifts are increasingly common, and growing numbers of students take classes at multiple colleges, there is a need for "an education passport," a way for students—and professionals—to represent their learning and carry it with them as they move from one setting to another. The call for integrative learning highlights connections across disciplines and the links between educational, professional, and personal life experiences. Educators across many fields and institutions are now focused on educating "the whole student," bringing together what was previously seen as disparate facets of a student's career. E-portfolios can facilitate this integration and respond to the need for transfer and ongoing training and education in a wide range of careers.

THE E-PORTFOLIO MOVEMENT

These powerful dynamics have not only encouraged literally hundreds of U.S. colleges to adopt e-portfolios, they've also spurred change in the nature of the movement. In the early years of the e-portfolio movement, e-portfolio practice was defined by small liberal arts colleges like Messiah College, Alverno College, Wesleyan University, and Kalamazoo College. Today, e-portfolios are found across the entire panoply of the higher education system, from the University of Massachusetts and Minnesota's St.

Olaf College to Hawaii's Kapi'olani Community College; from Pennsylvania State University and Ohio's Lorraine County Community College to Spelman College and Oral Roberts University. From community colleges to four-year liberal arts schools to massive university systems, public and private, urban and rural, the e-portfolio movement has adapted to the needs and priorities of diverse students, disciplines, and institutional cultures (Yancey and Canbridge 2001).

In some areas, e-portfolio practice has achieved critical mass. The state of Minnesota, through the Minnesota State Colleges and Universities System has made e-portfolio use a statewide initiative. There now are well over 100,000 e-portfolio users on eFolio Minnesota, which is available to all state residents for personal and professional showcases. The state of California has begun to consider a similar project, with a particular interest in using e-portfolios to strengthen the linkage between two-year and four-year state colleges. On the East Coast, LaGuardia Community College coordinates a FIPSE-funded project that provides minigrants and sustained support to colleges working on e-portfolio projects. Last year, the program worked with teams from ten colleges; this year, it will serve twenty-four colleges, from Borough of Manhattan Community College to Rutgers–the State University of New Jersey and St. John's University.

Meanwhile, the movement has also extended beyond the boundaries of the United States. Some of the most significant growth for the e-portfolio movement has taken place in Europe, with signs of interest also growing in Australia, New Zealand, and parts of Asia. In part due to the Bologna Process, which has prompted conversations about the transferability of education across the European Community, e-portfolio initiatives are underway in Germany, France, the Netherlands, Spain, and the United Kingdom. In October

2008, the Eighth International E-portfolio Conference sponsored by EIFeL (the European Institute for E-Learning) was held in the Netherlands, with a thematic focus on E-portfolio and Digital Identity. Presenters came from far and wide, including the University of Hamburg, the University of Amsterdam, the University of Paris, Queensland University in Australia, and City University of London. The Ninth International Conference, with a theme of Innovation, Creativity, and Accountability, is scheduled for London in June 2009.

The growth of e-portfolio use is directly related to its elasticity, to the diversity of purposes for which it can be used, including enriched learning and improved career development, transfer, and assessment. In practice, colleges often combine a number of purposes for their e-portfolio projects, an integrative approach that allows for rich results. At Kapi'olani Community College in Hawaii, students use e-portfolios to document their development, using traditional Hawaiian cultural metaphors. In the first-year studies program at Portland State University, students compile an integrative e-portfolio that draws connections between the courses in their learning community during a first year of study. At Florida State University, students use e-portfolios to document their experience and education for future employers. Queen Margaret University in Britain uses e-portfolios as part of its first-year experience program. Bowling Green University, Indiana University–Purdue University Indianapolis (IUPUI), and the University of Michigan use e-portfolio as part of sophisticated approaches to assessment.

In their earliest implementations, e-portfolios often focused on a single course at a college. Today, programs like Clemson University's psychology department are experimenting with capstone e-portfolios for graduation that connect a student's entire general education experience at

the institution with their education in a major. Spelman College is redesigning and extending its first-year electronic portfolio to address benchmarks during each college year, culminating in a capstone portfolio. Maturing in their ease of use, professional look, and portability in a digital culture, e-portfolios are now increasingly used to demonstrate proficiency in professional competencies like art, nursing, education, and library sciences at both the undergraduate and graduate levels. The University of Wolverhampton in England uses e-portfolios to merge professional competencies and reflection by asking students to document their placements as part of their professional training in nursing and midwifery.

E-PORTFOLIOS AND ASSESSMENT

The expanding use of e-portfolios for assessment has been particularly striking. The Bush-era debate over accountability in higher education and the related efforts of accreditation agencies to prompt colleges to examine student learning outcomes spurred widespread interest in a tool with the potential to facilitate this process. And while the challenge of conducting holistic assessment of student learning on a broad scale remains, these efforts have started to pay off. The annual Assessment Conference sponsored by IUPUI highlights the use of e-portfolios for assessment; and the program increasingly showcases the presentation of assessment outcomes, not just plans and proposals. Similarly, over the past few years, competition for the Council on Higher Education Accreditation annual award for Innovation in the Assessment of Student Learning Outcomes has featured growing numbers of campuses that can demonstrate effective use of e-portfolios for this purpose.

Another significant feature of the current e-portfolio scene is the proliferation of e-portfolio software platforms.

Scores of companies offer e-portfolio systems, including Blackboard, PebblePad, Chalk and Wire, Foliotek, ePortaro, and Digication. Last year, the *New York Times* Knowledge Network announced that it would offer portfolio services through the Epsilen technology developed at IUPUI. Universities such as Johns Hopkins have developed e-portfolio systems and licensed them for use by other institutions. The Minnesota initiative is about to bring out a new platform, the XFolio, which it hopes to market on a broad scale.

One of the more interesting platforms is the Sakai Open Source Portfolio. Linked to the developers' community of the Sakai learning management system, colleges are working to create a flexible system where the programming code is freely available to all. The Open Source Portfolio is particularly focused on facilitating assessment, and has drawn scores of institutional adoptions.

THE EVOLUTION OF OUR E-PORTFOLIO THINKING

WASHINGTON STATE UNIVERSITY
my.wsu.edu/portal/page?_pageid=177,301634&_dad=portal&_schema=PORTAL

Washington State University (WSU) has an evolving e-portfolio project that helps students produce colorful, customized e-portfolios. A large public university, WSU's e-portfolio work is led by its robust center for teaching, learning and technology (CTLT), headed by Gary Brown. The CTLT guides a growing number of departments, including graduate programs in communication, American studies, and bioenergy as they adopt e-portfolio use. Each year, around three thousand of WSU's 23,000 students are actively engaged with the e-portfolio system.

WSU's e-portfolio site offers glimpses of multiple e-portfolios shaped by disciplinary conventions as well as students' individual choices. Using Microsoft's Sharepoint software as a core platform for integrating Web 2.0 tools, WSU gives students considerable freedom to determine their e-portfolios' look and feel. "It has to be something that works for the students," Brown argues.

Faculty at WSU can decide to use students' e-portfolios in their program review process, and to engage students and area employers, such as Boeing, in a multifaceted assessment process. Applying their skills and knowledge to authentic or "ill-structured" problems in their disciplines, students use e-portfolios to document their problem, their research methodologies, and their findings.

Portfolios are reviewed by faculty and panels of outside reviewers, including working professionals from the field. Students harvest the feedback and self-assess, incorporating their learning into future projects. Rubric-guided assessment of the students' portfolios shows substantial growth over time. Brown is pleased that these projects combine integrative learning with sophisticated approaches to assessment. And, he notes, employers tell him that "this is exactly what we need."

To Brown, e-portfolios can be a valuable mechanism for building mutually informative dialogue between academic learning and professional life. And he feels that everyone is learning, including the faculty and the professionals involved. "We have a lot of great work to do," he notes "around academic interaction with the broader community."

WHEN THEY HAVE PICTURES & ASSIGNMENTS, THEY CAN GET AN IDEA

LAGUARDIA COMMUNITY COLLEGE, CUNY

www.eportfolio.lagcc.cuny.edu/ , www.eportfolio.lagcc.cuny.edu/scholars/sp07.html

Nestled against the East River in Queens, New York LaGuardia Community College is home to a six-year-old e-portfolio program that reaches more than eight thousand students each year. Serving one of the most diverse, immigrant-rich student bodies in the country, the LaGuardia e-portfolio program combines a student-centered approach to e-portfolio creation with institutional assessment.

"I think it's good because my parents are in Sri Lanka so they need to see my progress in the USA," one student told interviewers in a focus group study. "When I tell them my major is business management, they can't really think about that course because they don't have background. But when I have pictures, assignments, and course descriptions, they can get an idea about those concepts. And I think it's a good opportunity for us to reflect to ourselves about our work and everything."

LaGuardia's e-portfolios are distinctive, in part because of their attention to visual rhetoric. Students have a high degree of control over their portfolio's appearance. Some students use customizable templates, while others create their e-portfolios from scratch, using Flash and Dreamweaver. Either way, students spend significant time on the imagistic look and feel of the e-portfolio, yoking their visual presentation to written content. The result is a striking collection of visually provocative e-portfolios that harness the power of multimodal composition.

Data gathered using the Community College Survey of Student Engagement show that students in e-portfolio-intensive courses at LaGuardia are more likely to show high degrees of engagement with critical thinking, collaboration, and writing. Analysis of course pass rates and semester-to-semester retention also show higher rates of success for students in e-portfolio-intensive courses, compared to students in similar courses that do not use e-portfolios.

Funded in part by grants from the Title V program of the U.S. Department of Education, LaGuardia's e-portfolio system also supports the examination of student work from first-year courses to urban study and capstone courses, as a part of the institutional assessment process. Read against faculty-developed rubrics in seven core competencies, this collection of longitudinal data has been used in program reviews from accounting to nursing to basic skills in writing, and provides a new way to think about student development at the college.

E-portfolios at LaGuardia are supported in two key ways. Faculty members take part in extensive, multiyear professional development, thinking about how e-portfolios relate to their pedagogy. Experienced students work with the e-portfolio program in a professional capacity as e-portfolio consultants, leading e-portfolio tutorials, working with faculty in the classroom, and designing e-portfolio templates for beginning students. As such, LaGuardia's e-portfolio initiative is a collaboration between a risk-taking faculty, a supportive administration, and talented students willing to share their expertise.

In general, the e-portfolio platforms have grown sleeker and easier to use, allowing students to easily showcase their work or display progress over time. Some systems, such as Digication, have incorporated Web 2.0 features, such as blogging and tagging. Few systems now require any knowledge of HTML authoring. This creates possibilities for broader adoption and ease of implementation, and can greatly facilitate management of the e-portfolio data for assessment purposes. However, the price of ease of use in many cases is an increasingly standardized look and feel—a portfolio where students simply add text, photos, and video, but the overall organization, structure, and appearance are set in advance by the software developer.

The loss of visual richness is potentially significant. At their best, e-portfolios are not simplistic translations of text to screen. Students respond enthusiastically to the digital medium, eagerly experimenting with the aesthetic look and feel of their e-portfolios, the potential for multimodal authoring that moves fluidly between text, image, and audio components. Visual rhetoric is an emerging area of interest in composition studies, recognition that imagery and visual design signify a change in the nature of thinking and writing. Through e-portfolios we have an opportunity to harness the power of imagery and digital media to advanced cognitive processes. If standardized presentations become the norm, it may jeopardize student enthusiasm and miss an opportunity to connect academic discourse to the visually rich multimedia universe.

The rapid growth and diversification of the e-portfolio movement has established a significant place for e-portfolios in higher education. Yet e-portfolios use remains a movement, not yet a field. It lacks many of the ligaments of a field, including overarching professional organization, a robust body of published practices, and disciplinary paradigms. The literature on e-portfolio use is growing, but it is widely

scattered in location and fragmented in nature. The movement has significant conferences, but there is no major organization guiding or even monitoring the growth of the practice.

The Inter/National Coalition for Electronic Portfolio Research (I/NCePR) may be the most significant organization in the movement. Led by Kathleen Blake Yancey, Darren Cambridge, and Barbara Cambridge, the coalition does not aim to coordinate the emerging field. But it does stimulate much-needed research. Launched in 2005, I/NCePR works with teams from campuses with e-portfolio initiatives to help them pursue campus-based research about e-portfolios. Now launching its fifth cohort, the thriving coalition has worked with more than fifty campuses on topics such as the efficacy of reflection, collaborations between academic and student affairs, and personal planning over a three-year period. The coalition's first overarching publication, *Electronic Portfolios 2.0: Emergent Research on Implementation and Impact*, was recently released by Stylus Books (Cambridge, Cambridge, and Yancey 2009).

The American Association of Colleges and Universities (AAC&U) has launched an effort of comparable significance. AACU's Valid Assessment of Learning in Undergraduate Education (VALUE) project brings together e-portfolio institutions in order to create cross-campus dialogue about national standards for e-portfolios. In addition to traditional areas of competency such as written communication, VALUE is looking at integrative learning, an essential component of effective e-portfolios. This project will help to set a standard for national discussions of student learning through e-portfolios and will provide individual campuses with nationally normed tools to use in analyzing their students' learning (Basken 2008).

The efforts of VALUE and I/NCePR are highly significant. Yet neither plays the broad coordinating role needed to help organize and strengthen the field. The creation and sustenance of an effective umbrella organization is one of the challenges facing the movement, one that will affect its long-term growth and success.

MOVING FORWARD

In years to come, as the e-portfolio movement advances, we see at least three other key factors that will shape its growth and development: (1) how Web 2.0 and social networking will change the look, feel, and interactivity of the e-portfolio, (2) the persistent tension between a learning focus versus an assessment focus, and (3) the implications of international growth.

First, e-portfolio systems will be inevitably reshaped by the wave of Web 2.0 technologies sweeping higher education and society as a whole. For e-portfolios to continue to be attractive to students, e-portfolio systems need to approach the ease and interactive features of social networking sites like Facebook, Twitter, and Web-authoring platforms like Blogger, TypePad, and Wordpress. Currently, many faculty address this lack in e-portfolios by linking online social networking to their e-portfolios. Penn State has already launched a blog-based version of ePortfolio, with considerable success. These efforts to harness the energy of social networking to academic learning are still in their early phases. Meanwhile, the explosive growth of social networking highlights questions about our changing understanding of privacy and ownership of Web-based content, questions that will play an important role in the future of e-portfolios in higher education. As Kathleen Yancey noted at a recent Coalition meeting, "In this new context, we may have to redefine what we mean by e-portfolio."

Technologically, e-portfolios must also develop the ease of use of YouTube or Hulu for displaying student-authored video and audio content. Web 2.0

technologies may offer ways to use cloud computing and other dispersed solutions to facilitate flexible, customized solutions to e-portfolio needs. But e-portfolio developers and university IT divisions have much work to do before these opportunities become realities. The ways that e-portfolio platforms respond to the opportunities and the challenges of Web 2.0 are likely to determine the nature and significance of e-portfolios in decades to come (Barrett 2006; Xuesong, Olfman, and Ractham 2007).

Second, the e-portfolio movement must find a way to balance and integrate the diverse purposes that lead campuses to adopt it. In particular, the field has to some significant degree been divided between those who see e-portfolios as tools for enriched student learning and those who focus on their utility as a vehicle for assessment. In a 2007 *Inside Higher Ed* article, Trent Batson lamented the ways that e-portfolio's potential for enhancing students' metacognitive skills had been "hijacked by the need for accountability." At the 2008 Making Connections conference, another founder of the e-portfolio, Helen Barrett, made a slightly different point, saying "There's a major tension right now between student-centered and institution-centered portfolios. Between what I would call the Assessment *of* Learning on one hand, and on the other: Assessment *for* Learning, Assessment *as* Learning."

Barrett and Batson both recognize the need for accountability and assessment. The e-portfolio movement must find ways

to address these needs without sacrificing its focus on student engagement, student ownership, and enriched student learning. The need for thoughtful assessment processes in higher education is profound, and e-portfolios' potential contribution to this challenge could play a significant role in deepening our dialogue about the nature and value of deep learning. Yet, if e-portfolios are only assessment tools, without value or meaning to the students who create them, they will lose vitality and become an exercise in discipline and surveillance. The success of the VALUE project and similar efforts will be significant in helping the e-portfolio movement develop an integrated solution to this dilemma.

Finally, the growth of e-portfolios in the global field of higher education will undoubtedly have a profound effect on the shape and scope of the e-portfolio movement. E-portfolios in Europe, Asia, or Latin America may well take very different forms from e-portfolios in the United States, suggesting new approaches, challenges, and opportunities. As technology continues to connect our world, our e-portfolios must begin to translate across cultures and national boundaries, enriching the global conversation about education. If international transparency is achieved, it could facilitate global examination of the nature of learning and thoughtful exchange and the future of education in a turbulent and fast changing world. The success of e-portfolios in the United States may well hinge on our ability to learn from and collaborate with emerging e-portfolio movements in the rest of the world.

In the end, debates about the direction of the e-portfolio movement come back to fundamental questions about learning. In a 2008 roundtable discussion of the future of the e-portfolio movement (Eynon 2009), Melissa Peet, a research scientist and leader in the e-portfolio program at the University of Michigan, pointed toward these underlying questions: "Here's what I want to know: How can e-portfolios enable a conversation about the purpose of higher education in the twenty-first century?" she asked. "How do we become learning communities? How can we become institutions that build students' capacities as lifelong learners? How do we, as institutions, build collaborative and deep learning capacities in our faculty? To me, asking questions about e-portfolios is synonymous with asking questions about the future of learning. And the future is here, now." ▪

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Institutional Uses of Rubrics and E-portfolios:
Spelman College and Rose-Hulman Institute

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Institutions are now turning to e-portfolios to demonstrate and communicate student achievement at the college or university level. Below, two very different institutions discuss how they have engaged faculty in developing rubrics and e-portfolios that articulate expectations for student learning and focus on the work students do in response to assignments and activities reflective of the curriculum and cocurriculum that embodies their education at their respective institutions. Rose-Hulman Institute developed its own e-portfolio system and outcome rubrics for purposes of program assessment to meet accreditation requirements. Spelman College uses a commercial e-portfolio platform and began assessing a single outcome for a specific set of students. Each was driven by a desire to know more about student learning and curricular improvement. The two institutions demonstrate two different ways to begin to use of rubrics and e-portfolios in intentional ways that involve the entire institution within that campus' mission and culture.

ROSE-HULMAN INSTITUTE OF TECHNOLOGY
Rose-Hulman Institute of Technology is a private, undergraduate college of 1,900 students located in Terre Haute, Indiana (www. rose-hulman.edu). It has a national reputation for educating undergraduates to pursue careers in the fields of mathematics, engineering, and science, and has a strong track record of creatively developing and rigorously assessing pedagogies for teaching in these fields.

Defining Student Learning Outcomes
The school's commitment to undergraduate education is reflected in its institute-wide assessment process that includes a defined set of institutional learning outcomes and the Rose-Hulman

electronic portfolio project, the RosE Portfolio System (REPS), winner of the 2007 Council on Higher Education Accreditation Award for Progress in Student Learning Outcomes. In 1997, school administrators began the process of developing a set of institute-wide student learning outcomes, outcomes that would constitute the set of skills all Rose-Hulman students develop by the time of graduation. These outcomes were designed based on input from a wide variety of constituents: faculty, alumni, industry (those who hire Rose-Hulman graduates), graduate schools, and other sources. By the end of the 1997–98 academic year, a set of institute student learning outcomes were in place, defined with specific performance criteria. These ten learning outcomes were adopted by the faculty of the institute and subsequently published in Rose-Hulman official documents, such as course catalogue and Web pages. In 2006, following the institution's program and institutional accreditation visits, the school reviewed the institute outcomes and revised them into the current set of six outcomes (available at www.rose-hulman. edu/REPS).

In addition to defining student learning outcomes, Rose-Hulman faculty also needed to develop an effective and efficient data-collection method. Thus, their work on defining student learning outcomes occurred simultaneously with designing an electronic portfolio system for the purpose of data collection for evidence of student learning. In 1997, there were no electronic portfolios systems available commercially that reflected Rose-Hulman's assessment model, so the institution developed its own portfolio. Since Rose-Hulman instituted a laptop computer requirement for all students in 1995 (one of the first colleges to do so), the college decided to use electronic portfolios. Thus, students were required to use an institute-specified laptop computer with a preinstalled software suite, which made the portfolio assessment process

both effective and efficient since all dimensions of the process—from student submission to portfolio evaluation—occurred within an electronic system.

In summer 1998, REPS (the RosE Portfolio System) was piloted to evaluate a set of student submissions. Every year since then, REPS has been used to collect, evaluate, and report achievement in student learning outcomes to students, faculty, employers, graduate schools, and various accrediting agencies. In 2005, we began to develop the functionality of the RosE Portfolio System inside our institution's course management system. Now we have adopted the RosEvaluation Tool as our means to evaluate student work products that are submitted.

Portfolio Assessment
The core of the RosE Portfolio System is the assessment process. This process begins with faculty identifying the outcomes that are addressed in their courses. All faculty members submit quarterly curriculum maps that show which of the institutional learning outcomes are addressed in their courses. A review of these curriculum maps demonstrates which courses will provide students with opportunities to develop their skills in the learning outcomes. After the curriculum maps are analyzed, faculty members determine which assignments in their courses will provide the best evidence of student achievement in the outcome. Faculty members teaching courses in technical communication, for instance, identify specific assignments in their courses that can show evidence of improvement in their students' communication skills. Once the assignments have been identified, faculty members direct students to submit those assignments to drop boxes in the course-management system. These drop boxes are mapped to the Institute Student Learning Outcomes through the RosEvaluation Tool.

We collect evidence of student learning for all six institute learning outcomes every year. At the end of the academic year, a team of faculty portfolio raters are trained; they then rate all submissions to the RosE portfolio system over a two-day rating session, using predefined evaluation rubrics. Once the ratings are completed, the portfolio rating results are compiled and analyzed by the Office of Institutional Research, Planning and Assessment. Each department then receives a report that contains detailed portfolio results for all student majors (from freshmen through seniors). Departments use these data to make improvements in their curricula to address any deficiencies in student achievement.

Rating submissions to the RosE portfolio have followed the same basic methodology since the system was initiated in 1998. Rose-Hulman faculty members (usually up to fourteen each year) are hired

learning outcome. The rating rubrics were developed by faculty members who serve on the Commission for the Assessment of Student Outcomes (CASO), the institute-wide committee charged with maintaining the outcomes assessment process. Each year faculty portfolio raters review the rating rubric, as well as the comments made by the faculty portfolio raters who evaluated the same outcome in previous years. As part of their training to be raters, the rating team discusses the rubric while comparing it to student documents that were rated during previous rating sessions. The purpose of this work is to ensure calibration: between the two faculty raters, and between the current faculty raters and each previous faculty rater team. Calibration like this helps ensure consistency in rating from year to year.

Attempts are made to involve faculty from many different departments on campus to ensure objectivity in rating and broad-based familiarity and participation in the process

as portfolio raters. Attempts are made to involve faculty from many different departments on campus to ensure objectivity in rating and broad-based familiarity and participation in the process. Raters work for two days together in a computer laboratory. The rating session coordinator facilitates the process and assigns pairs of raters to rate student submissions for a particular outcome. For example, a mechanical engineering faculty member and a chemistry faculty member may work as a rating pair assessing the student files submitted for the Communication Outcome.

The rating process consists of four steps.
1. Faculty portfolio raters review the rating rubric associated with the

2. REPS requires that each rater team rate a set of three shared documents. The rating is made on the basis of a preestablished rating rubric; raters answer "Yes" or "No" for a single rating question: "Does this document meet the standard expected of a student who will graduate from Rose-Hulman." Student achievement is measured as either "Yes/Pass" or "No/Fail." Raters also have the opportunity to mark the document as "Yes/Pass/Exemplary" to designate student submissions that represent superior achievement for a particular outcome. In order to ensure consistency in rating between the raters, REPS uses an interrater reliability (IRR) process. When they read and evaluate the set of

three shared documents, the raters must agree in their rating. If their ratings are not identical, REPS prohibits them from continuing on with the rating process. Raters then discuss their ratings, checking their evaluation against the rating rubric for the outcome; they then come to agreement on how they will evaluate the shared document set. IRR is a key component of REPS; it ensures that raters look for the same qualities and features in order to rate documents. This helps the faculty raters to calibrate their ratings against each other and ensures consistency in rating.

3. If the raters agree in their IRR, the system then allows them to proceed with a set of ten documents, each rater reading and rating a different set of ten documents. REPS records their rating for each document. The system also introduces a shared file every ten documents in order to check that the raters have maintained their interrater

For over fifteen years, the Comprehensive Writing Center has coordinated assignments, collection, and scoring of first-year writing portfolios, using trained evaluators (faculty and graduate students) to evaluate the compositions

reliability. Failure to rate the shared document identically will cause the system to stop the raters so that they can recalibrate their evaluation before moving on to another document set. Thus, IRR continues to validate rating throughout the rating process.

4. The raters can provide comments about the rating session or about the student submission in the comment boxes. In addition to the work of rating, faculty raters also record insights they made during rating and collect sample documents in order to provide next

year's raters with material for calibration. They may also suggest changes to rating rubrics or to learning outcomes, although revisions must be reviewed and approved by CASO before they are implemented into REPS.

SPELMAN COLLEGE

Spelman College is a 127-year-old, historically black, liberal arts college for women in Atlanta, Georgia. About three years ago, the provost began a curricular transformation project for general education that included greater emphasis on interdisciplinarity and connected learning across courses. Faculty workgroups began to rethink general education goals, and adopted new ones based on a theme of Free-Thinking Women of African Descent. Inspired by our signature first-year course, African Diaspora and the World, the new general education curriculum expands Diaspora studies into interdisciplinary courses beyond the first year.

Instituting E-Portfolios
About the same time that the curricular transformation began, the college was contemplating a campuswide electronic portfolio system for student, faculty, and administrative use. After some piloting of electronic portfolios in courses during fall 2007, the college initiated required electronic portfolios for all first-year students. Initially, electronic portfolios were housed in a cost-effective computer-based platform, while faculty and administrators evaluated other commercially available products that might serve as a campus

standard. An Internet-based software product was eventually selected and implemented for use throughout the college in fall 2008. Beginning last semester, all first-year students (approximately 565) developed electronic portfolios as part of a revised first-year experience course. The Spelman Electronic Portfolio project has come to be known, in brief, as SpEl.Folio.

The SpEl.Folio emerged from a long-standing practice of evaluating entering students' writing ability through a portfolio submitted near the end of the first year of college. For over fifteen years, the Comprehensive Writing Center has coordinated assignments, collection, and scoring of first-year writing portfolios, using trained evaluators (faculty and graduate students) to evaluate the compositions. Students who do not receive a passing score are tutored and allowed to resubmit the portfolio the following semester. Any student who does not receive a passing score on her revised portfolio is automatically enrolled in a two-credit course on grammar and style, to help develop her writing skills.

Other college departments—psychology, education, and art, for example—also required students to submit portfolios. However, it was largely the first-year writing portfolio that inspired a comprehensive portfolio to document, in addition to writing, many other aspects of the student learning experience at Spelman. With the introduction of SpEl.Folio, all first-year students now submit in digital format reflections on the required community service experience, report on information literacy exercises, and compose reflections on the first year of college in addition to their writing portfolio. As indicated by the SpEl.Folio mission statement, one of the aims of creating an electronic portfolio is to enable students to "think critically about the connections among their intellectual, professional, and personal lives." We plan for SpEl.Folio to

expand further, and provide multimedia documentation of student achievement throughout her time at Spelman. As a bonus, the SpEl.Folio is a portable document that may also be downloaded and shared with prospective employers and graduate schools.

The faculty has identified four institutional goals that embody the college mission in academic affairs, student affairs, and cocurricular activities. Those institutional goals are associated with seven student learning outcomes for general education, and together, they form the standards by which student performance is evaluated in SpEl.Folio. With this structure, the college is able to evaluate student learning from several different perspectives: on the institutional goals and general education learning outcomes by course or by student classification, on specific elements of the general education learning outcomes (like writing and critical thinking) that are common across courses, and quite importantly, on longitudinal student development over time.

Because SpEl.Folio development and implementation has occurred contemporaneously with general education curricular reforms throughout the college, it has stimulated discussions among the faculty on how we might best use such a tool to engage students meaningfully, while evaluating their performance and growth. Like many other liberal arts colleges, we regard the electronic portfolio as the preferred method of demonstrating to internal and external constituencies the impact of the college experience on student development. While the college plans continued use of some standardized tests for specific purposes, our goal is to increase systematically the number of courses using SpEl.Folio, thus enabling the college to evaluate students' learning using genuine artifacts from general education courses, work in the major, and cocurricular experiences.

More Authentic Assessment
One particular benefit of using electronic portfolios is that it is regarded by many faculty as a more authentic approach to assessment of student learning and development than standardized testing alone. Criticisms of high-stakes, multiple-choice testing are most loudly voiced, but some faculty members are skeptical of even the more recent problem-solving tests, like the Collegiate Learning Assessment (CLA). Although acknowledged as a considerable improvement over multiple-choice exams, the CLA is described by our more vocal faculty as an engaging high-stakes test, but one with the same faults as many other high-stakes tests—namely, time-limited performance pressure on subjects divorced from the learning experience.

Spelman College has joined AAC&U's VALUE project over concerns about the validity of student assessment and a desire to participate in developing rubrics for use in undergraduate education. Now that SpEl. Folio is underway, the college recognizes a need to expand faculty development in electronic portfolio use beyond the group of Vanguard Faculty who implemented SpEl.Folio in the first-year experience. The two groups of faculty most immediate training needs are the departmental faculty, who will guide the sophomore-year experience linked to the student's major, and the general education faculty, who are revising student learning objectives that will be evaluated in SpEl.Folio. Both groups of faculty will determine how to structure courses and SpEl.Folio assignments to achieve learning objectives of the revised curriculum and document them appropriately in the electronic portfolio.

The SpEl.Folio project was created with several goals in mind, including an intention to use digital technology to enhance and document the student learning experience. With the full-scale launch of required electronic portfolio use for all first-year students—now in a uniform platform for all users—Spelman College has achieved its goal of implementing an electronic means of capturing significant elements of the learning experience. Having done so, we are now well on our way to enriching the student learning experience via multiple curricular and cocurricular interconnections to the SpEl.Folio. Students and faculty alike are able to access the Web-based portfolio to compose and review authentic learning artifacts derived from classes, service learning activities, and personal reflections.

For students, who are often well-versed in digital networking via the Internet, the electronic approach to submitting and revising assignments feels familiar and provides creative flexibility that they can appreciate. For faculty participating in development and implementation of the electronic portfolio, it is a means of collecting authentic artifacts of student learning and evaluating those artifacts using standardized methods (scoring rubrics). Faculty also can supplement face-to-face communications with students through the electronic portfolio.

Through use of the electronic portfolio, the college is attempting to increase student engagement in the learning process— a critical factor in promoting achievement and persistence to graduation. ▪

Electronic Portfolios a Decade into the Twenty-first Century:
What We Know, What We Need to Know

▸ **Kathleen Blake Yancey,** Kellogg W. Hunt Professor of English and director of the graduate program in rhetoric and composition, Florida State University

During the last decade, campuses designing electronic portfolios have used them both in curricular and assessment contexts. And in many campus e-portfolio projects, diverse stakeholders—faculty, staff, students, potential employers, and members of the public—have participated in the design and review of e-portfolios. Such electronic portfolios have included a range of exhibits, from multimedia artifacts and reflective commentary to artifacts-as-evidence linking to institutionally sanctioned programmatic outcomes and to more personalized self-identified outcomes. In sum, these e-portfolios have provided a new, continuing mechanism both for documenting specific practices and student accomplishments and the effects of that these activities have on learning outcomes.

WHAT WE KNOW

At the heart of this work in electronic portfolios is what was first a hope and then an assumption, and now a research-based claim: that *creating*, *evidencing*, *connecting*, and *reflecting* involved in electronic portfolios engage students in new and beneficial ways—especially when the portfolio provides a space for student-informed participation

> The literature on e-portfolios suggests that student engagement is a critical element of portfolio development (Barrett 2000; Batson 2002; Yancey 2001). The inability to get students engaged or excited about their e-portfolios will result in a flawed implementation. From the students' perspective the ability to personalize their e-portfolio contributes to their motivation to "work" on it throughout the year as well as their engagement in the process (Ring, Weaver, and Jones 2008).

In other words, when the e-portfolio is designed by the student as much as by the institution, implementation efforts are more likely to succeed. As important, where programs are successful in motivating students to be engaged at this level, they see higher rates on key educational metrics when comparing students creating e-portfolios with students who have not done so. Such metrics include higher rates of student engagement on a local measure of engagement (Kirkpatrick et al 2009) as well as on the nationally normed Community College Survey of Student Engagement; higher rates of course completion; and higher rates of retention (Eynon 2009). In these terms, e-portfolios work to increase student engagement.

More recent research conducted at Seton Hall University has focused on the ability of e-portfolios to foster the development of noncognitive traits as well, a topic of increasing interest in higher education. Typically such traits are defined as behaviors and attitudes, such as the ability to work with others, that correlate with success in school and employment. As reported in *Inside Higher Ed*, for example (Jaschik 2007). Oregon State University has implemented an admissions activity called the Insight Resume (IR)—a set of six questions that all students must answer—that address such factors as "Leadership/Group Contributions" and "Dealing with Adversity." The IR is rated by faculty as part of the admissions process, producing a score that counts for 30 percent of the overall admission score. The benefits of the IR are many. In addition to providing a fuller picture of the student, the IR has resulted in the admission of more students of color, and as significant, these students have higher retention rates. In a similar effort, ETS will in July begin marketing a graduate admissions procedure called

the Personal Professional Index, which is a similar measure of noncognitive factors keyed to success in graduate school. Seton Hall's contribution to this line of research is to focus on the use of e-portfolios as a site for students' recording and reflecting upon noncognitive traits, specifically five such traits, including familial support for success in college and social integration during students' first year. The intent in this e-portfolio project, then, is to foster the development of these noncognitive factors so that students stay in school. Initial data from this project show two important outcomes: (1) that scoring guides keyed to these traits can be developed and applied to e-portfolios, and (2) that students who score well on such traits are in fact more likely to stay in school. In these terms, electronic portfolios are also working.

FOUR CRITICAL INTERACTING FACTORS: E-PORTFOLIO MODELS, TECHNOLOGIES, PROGRAMS, AND CONTEXT

At this stage of their development, we are not certain about why e-portfolios produce effects like increased levels of engagement and retention, and we can't yet account for how e-portfolio design or structure contributes to fostering learning, increasing engagement, and increasing retention. Most e-portfolio projects are still at beginning stages and we are still learning about the critical relationships that define them—particularly the relationship of any given model for e-portfolios (be it focused on learning, outcomes, or career preparation) to a given curricular program (general education, departmental, accreditation, graduate) and to a given technology. As they develop, e-portfolio models create various relationships among these three dimensions, and for those engaged in developing e-portfolios, this set of dimensions raises new questions. Unlike print portfolios, which were largely course-based and which played a limited

assessment role, typically substituting for a final exam in a course, electronic portfolios tend to operate in a larger frame of reference, across courses and often across experiences: at Georgia State University, for example, they operate inside a first-year writing program; at Alverno College; they provide an evidentiary base for advising *across* the college years (Rickards and Guibault 2009); and at Thomas College, they operate *across* a major, culminate at graduation, and provide a link to employment (Edwards and Burnham 2009). In other words, unlike their print cousins, these e-portfolio models are designed to document learning not just inside a course but across courses and across experiences in college and beyond. More research is clearly needed on the role of multiple contexts for e-portfolios and their relationship to fostering intellectual development.

When initiating e-portfolio projects, campuses often begin by deciding on a

specific technology to support e-portfolios. Common criteria for such technologies include cost and ease of use, but as recent research demonstrates, another criterion is equally important: the ways the technology is programmatically formative. Although e-portfolios are not themselves about technology, any technology—be it the common tool, the open source software, the homegrown system, the commercially available e-portfolio tool, or the Web 2.0 social network—is a "structured

system" (Johnson 2009) and will permit or support certain kinds of activities and preclude others. Penn State University's research on electronic portfolios provides an excellent example of how this works. The Penn State team initially hoped for a single e-portfolio "enterprise solution," but increasingly found a disconnect between their interest in institutional program assessment and their equally important commitment to fostering student dialogue and participation. As the research team explains:

> Throughout our participation in coalition research on e-Portfolios at Penn State our research question has remained focused around cocurricular learning and the role that structured systems play in facilitating student engagement in specific learning outcomes. What has challenged our research endeavors has been changing technology within which we have had

At this stage of their development, we are not certain about why e-portfolios produce effects like increased levels of engagement and retention, and we can't yet account for how e-portfolio design or structure contributes to fostering learning, increasing engagement, and increasing retention

to conduct this activity. For various reasons we have moved from open web space and common web publishing tools to ANGEL e-Portfolio to PebblePad and now to MovableType (Johnson 2009).

In other words, the Penn State original plan for e-portfolios consisted of finding an enterprise system solution that would support learning for all students while at the same time providing an administrative 'back door' through which an aggregation

of rich assessment data related to learning could be harvested. Such a hypothetical system to satisfy all these needs is untenable (Johnson 2009).

Given their experience, the Penn State project has identified three complementary approaches and technologies to provide for differentiated purposes: (1) program-specific learning outcome templates for MovableType, which supports student e-portfolio activity and dialogue; (2) backtrack to e-portfolios from student resume samples, which supports internal student reflection on artifacts seen in multiple contexts (course, program, and employment) that can prompt new engagement and learning; and (3) an assessment

under investigation, researchers can turn to them for insight into the effects of creating an e-portfolio, including the role e-portfolios play in teacher education candidates' understanding of assessment (e.g. at the University of Nebraska–Omaha [Topp and Goeman]), or the reasons for the connections among artifacts (e.g. by Clemson psychology students [Stephens 2009]). Put simply, students' explanations, whether through reflective commentary or interviews, provide a window into the e-portfolio experience. Using this methodology, researchers have also inquired into the impact on learning as students move from a reflection on learning inside a single context—that of the course—to a reflection on

As a consequence of this retrofitting, Josh reported that "the ease of the . . . portfolio template," for him, made the portfolio-creation process feel more list-like and that it removed a good deal of the freedom he associated with creativity. He also reported a loss of multiple contexts in the templated approach. Without the multiple contexts, Josh claimed to have learned less.

> "The whole point of the portfolio that I made [in the nontemplated model] was to help me realize the connections that I made across the curriculum, and to make these connections obvious to the people who view my portfolio, to show that I indeed did learn something, and not just how to regurgitate the assignments of the past semester" (Weaver 2005).

Josh noted, as well, that for him the value of e-portfolios was creating connections from classes to larger contexts. Students, he notes,

> "have already proven that they have the knowledge to answer specific questions by passing their classes, but it is just as important for them to demonstrate that they can make connections among those things they have learned. This is where I believe the value of the e-portfolio lies" (Weaver 2005)

Students' explanations, whether through reflective commentary or interviews, provide a window into the e-portfolio experience

management system, which provides faculty the opportunity to identify and tag key learning artifacts. In this more differentiated approach, the selection of technologies is more than rhetorical. Each tool is selected precisely because it supports a given purpose and audience. Moreover, as the Penn State experience illustrates, research on how different e-portfolio outcomes are supported or discouraged by specific electronic portfolio technologies is necessary to determine how these technologies can or cannot support learning more generally.

THE E-PORTFOLIO "TRANSLATION EFFECT": THE ROLE OF MULTIPLE CONTEXTS IN FOSTERING LEARNING

As suggested in the Penn State example, the role of context(s) and its impact on learning has been the focus of additional research, in some projects, a key role is played by students-as-native informants. Because students create the e-portfolios

learning in a larger context, across courses. For example, Clemson engineering student Josh Reynolds shared such a perspective.

Josh had created several portfolios, working in software like Mozilla and Dreamweaver, and two of his e-portfolios had been awarded prizes by Clemson's Pearce Center for Professional Communication. Because the university was interested in how different software might affect the creation of excellent e-portfolios like the ones Josh had composed, Clemson went straight to the source, to Josh. They asked Josh first, to:

> recreate his award-winning e-Portfolio within Blackboard and then create a gen ed e-portfolio that makes use of some of his original e-Portfolio, [t]he goal . . . to see how a student might best demonstrate general education competencies without letting [a] structured . . . portfolio template or tool interfere with his creativity and learning (Weaver 2005).

In making such observations, Josh is not alone. Students at Florida State University (FSU) working in a very different model—a career portfolio—speak similarly of the shift from discrete courses to a larger frame of reference. The FSU career e-portfolio, like several e-portfolio models, isn't limited to academic courses. Rather, it provides space for learning to occur in three areas: (1) curricular situations, which are largely course-based; (2) cocurricular situations, which are often linked to the curriculum (e.g., service learning opportunities, internships, peer tutoring, and leadership experiences); and (3) extracurricular situations (e.g., jobs, sports activities, etc.). The matrix structure FSU uses to foster this multicontextual thinking—what

FSU calls a Skills Matrix—resembles the general education matrix created at Indiana University–Purdue University Indianapolis (IUPUI). Researchers at IUPUI suggest that this model promotes "matrix thinking"(Hamilton and Kahn). The logic of matrix thinking is that a matrix prompts students to place any single artifact in multiple cells, in the process seeing the same artifact in multiple ways and thus drawing different conclusions about it and yet also synthesizing its value. At FSU, the Skills Matrix is comprehensive, as documented in this report:

> In the Skills Matrix, students document the experiences in which they have developed various transferable skills. The skills that are integrated in the portfolio are: communication, creativity, critical thinking, leadership, life management, research/project development, social responsibility, teamwork, and technical/scientific. Students have the ability to add their own skills, which may include skills that are more directly related to their academic major or career goals. The experiences students can use to reflect on the skills they have gained include: jobs/internships, courses, service/volunteer work, memberships/activities, and interests/life experiences.

In using this matrix to organize work from multiple domains, students "translate" their experience from one context into a larger context. As Barbara Cambridge explains, "Movement between [contexts] is the site of invention," a point made by one FSU student in articulating her experience:

> "The portfolio has been so useful in helping me realize what skills I've learned through the experiences I've had and classes I've taken. Having my classes and jobs organized according to the skills I've gained from them allows me to see what I've actually accomplished through my education…The portfolio really has proven to be a pow-

erful tool that forced me for the first time to consider what I've done with my college career. It brings a whole new way of thinking about classes; instead of just evaluating success through test scores and completed requirements I'm seeing what valuable skills I've gained that will help me in the future" (Cambridge 2009).

This translation effect, occurring as a function of students seeing their work in multiple contexts, is occurring in other e-portfolio programs as well. In the Virginia Tech English Education model, for instance, students locate evidence drawn from courses, which provide one context, and internship experiences, which provides a second context. They also relate their work to the Interstate New Teacher Assessment and Support Consortium (INTASC) standards, which provides a third context. In addition, some students create their own set of outcomes, which provides a fourth context. These contexts are layered into the e-portfolio, and the movement between layers provides new opportunities to learn and to invent. Likewise, research on e-portfolios in the accounting major at the University of

Waterloo shows that of all sites of learning, the most productive for multicontextual invention happens as students move to a co-op experience where, they apply and modify what they have learned in classroom settings and use multiple contexts in dialogue to frame their learning.

EVIDENCE AND REFLECTION

At the heart of e-portfolio practice research is a claim about the significance of evidence-based learning. Whether outcomes are programmatically identified or student-designed, the process of connecting artifacts to outcomes rests on the assumption that the selection of, and reflection on, a body of evidence offers another opportunity to learn and a valid means of assessment. At the same time, research has only recently focused on the process of selection and on what counts as evidence. As the e-portfolio research team at George Mason University observes:

> Despite the central role of evidence in e-portfolio practice, the dynamics of its use by portfolio authors is under-examined. The role of evidence is often assumed [to be] uniform: artifacts produced by the author (or assertions about them) are connected to a competency the author claims they possess, and the evidence is either sufficient or insufficient. In fact, our research suggests that the actual use of evidence in e-portfolios is much more complex (Blank-Godlove et al 2009).

During the last three years, as part of their participation in the Inter/National Coalition for Electronic Portfolio Research, the George Mason team has developed what they call an emergent typology on use of evidence in portfolios. Based on content analysis of multiple portfolios, the researchers hypothesize that students' use of evidence "varies along three dimensions": "(1) the characteristics of the item used as evidence, (2) the explicit or deduced purpose of the portfolio creator

in incorporating the selected evidence, and (3) the characteristics of the learning activity reflected in the use of evidence." Excellent e-portfolios "align" evidence with context and with audience, and "there is a match between the content of the evidence and the way it is framed in the reflective narrative of the e-portfolio."

The role that reflection plays in student learning and how it can be supported is also focusing research efforts. One set of research questions has to do with the contribution that reflection makes to learning and assessment: is reflection a contextualizing device, evidence itself, or both? This question is, again, one of interest to higher education more generally. For example, Bob Gonyea , who works on the National Student Engagement Survey project, has suggested that reflection, which we once thought of as a proxy for learning, may itself be evidence. E-portfolio reviewers' observations make the same point. When Florida State University asked prospective employers, for example, "whether it was the experience itself or the way in which students described their experiences [that was most influential], three of the four employers believed that a student's ability to effectively describe his or her experience outweighs the experience itself." Many colleges and universities— including Sheffield Hallam University, the University of Waterloo, and Alverno College—have also found that helping students develop a "capacity to reflect" is a critical educational outcome, in and of itself. The researchers at the University of Waterloo summarize the issue this way:

> Reflection is a learned skill. Students do not necessarily "know" how to reflect effectively on their learning and use those reflections to make connections between the learning that occurs in different contexts (academic, workplace, community). Indeed, we found that the majority of students in our study

groups did not begin to make connections, despite being encouraged to do so, until they moved from one context (academic) to another (workplace). This indicates that we need to carefully scaffold opportunities for reflection into academic programs for students so that they have time to develop this ability. Providing feedback upon which they can act, and providing it in a timely manner is critical to the development of the capacity to reflect. With the expectation that learning is a life-long endeavor, students must become more aware of how they learn if they are to continue their personal growth and development after they graduate. Developing the capacity to reflect is key to this outcome (Penny-Light et al. 2009).

Given that many e-portfolio practitioners and researchers understand reflection as the connective tissue for the intellectual work and exhibits we see in electronic portfolios, the next generation of electronic portfolio research is likely to focus on questions around reflection.

CONCLUSION

Research on electronic portfolios has developed in a unique way, involving faculty, of course, but also students, staff, potential employers, and many others in the process. Because electronic portfolios are worldwide, our knowledge base is both wide and culturally complex. Because many e-portfolio practitioners want to know if e-portfolios "work"—if they make a difference in students' lives and if they can contribute to student success of many kinds—research from the beginning has linked individual efforts to larger bodies of research. And because e-portfolios link curriculum and assessment in ways that acknowledge and build on students' experiences, they provide new sites for learning about how we assess, about how we teach, and perhaps most importantly, about how we all learn. ∎

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Highlights on AAC&U's Work on Assessment

VALUE COLLABORATION

One of the foundations of the VALUE (Valid Assessment of Learning in Undergraduate Education) initiative is a new collaborative site aptly named Opened Practices. The site is a major cross-project/cross-institution effort to build a community of practice for teaching and learning with open/community-source tools. On this site you can view rubrics, access numerous references and useful materials, and read profiles of institutions that use open- and/or community-source tools, such as e-portfolios.

While Opened Practices houses the materials that were previously collected in the community library for the Open Source Portfolio project, the largest collection on the site is more than 100 rubrics from across the country that formed the backbone of the VALUE rubric drafting process for fourteen Essential Learning Outcomes that will culminate in summer 2009. The site, however, does not focus solely on e-portfolios and their many uses. For example, it also showcases submissions for the second annual Teaching with Sakai Innovation Award, which collects innovative online courses taught on the community source Sakai collaborative learning environment. The site, as its name suggests, is open to uploads from anyone in higher education.

The team that created Opened Practices (including staff from AAC&U, Marist College, the University of Michigan, the University of Delaware, and rSmart) has accomplished a great deal in a short time. There is no shortage of ideas and energy, so expect the site to grow quickly and be worth repeat visits. You can find the site at openedpractices.org.

AAC&U SUMMER INSTITUTES

AAC&U summer institutes offer campus teams a time and place for sustained collaborative work on a project of importance—away from the daily pressures of campus life. Participants learn from new research, national trends, other campus' efforts, and consultations with distinguished institute faculty to develop campus action plans that are thoughtful, research-based, and feasible. While the application for this year's institutes is closed, information about next year's institutes will be available in the fall.

Institute on General Education and Assessment
May 29–June 3, 2009, Minneapolis, Minnesota

This institute creates a varied, intellectually stimulating environment for advancing campus planning in general education for two- and four-year, liberal arts, comprehensive, research, and public or private campuses. The Institute on General Education is comprised of interactive presentations by experienced faculty who have been engaged in general education reform and with emerging trends in higher education and student learning. Campus teams will have ample opportunity to meet one-on-one with these faculty consultants, work collaboratively within their teams, and to share ideas with the other campus teams.

The rich curriculum in general education reform includes a variety of sessions on framing campus projects in local and national contexts, improving assessment of general education student learning, best practices, and emerging trends in higher education. Campus teams also learn strategies for placing their general education reform within the framework of AAC&U's Greater Expectations and Liberal Education and America's Promise initiatives.

2009 Greater Expectations Institute:
Leadership to Make Excellence Inclusive
June 17-21, 2009, Burlington, Vermont

The 2009 AAC&U Greater Expectations Institute has been designed to help campuses respond to national calls to improve the quality of undergraduate education for more Americans in the highly competitive new global century. Specifically, the institute's intensive five-day program is designed for campuses working to build their own institutional capacity and campus leadership to increase the engagement, inclusion, and high achievement of all their students. The Greater Expectations institute will help campus teams align institutional purposes, structures, and practices as well as advance and assess the kinds of learning outcomes—such as critical inquiry, communication skills, social responsibility, intercultural competence, and integrative learning—essential for success in today's world.

### AAC&U Engaging Departments Institute
July 8-12, 2009, Philadelphia, Pennsylvania

The Engaging Departments Institute will provide campus teams of academic administrators, department chairs, and faculty with an intensive, structured time to advance their plans to foster, assess, and improve student learning within departments and across the institution. Recognizing that most faculty identify strongly with their discipline and department, and students are engaged in more complex and sophisticated practice of liberal learning as they complete their majors, the institute builds from those academic "homes" toward effective educational leadership and intentional collaboration among departments to achieve program and institution-wide learning outcomes consistently and at high levels.

ASSESSMENT PUBLICATIONS

Assessing Global Learning:
Matching Good Intentions with Good Practice
By Caryn McTighe Musil
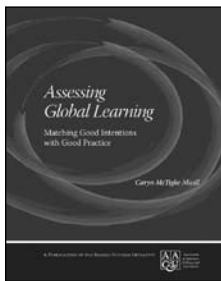
Assessing Global Learning is designed to help colleges and universities construct and assess the impact of multiple, well-defined, developmental pathways through which students can acquire global learning. Specific program examples demonstrate how and where curricular and co-curricular learning can be embedded at various levels from individual courses to institutional mission. The publication argues for establishing clear global learning goals that inform departments, divisions, and campus life and suggests assessment frameworks. Includes a sample quantitative assessment survey and several assessment templates.

The Art and Science of Assessing General Education Outcomes:
A Practical Guide
By Andrea Leskes and Barbara Wright

This guide offers practical recommendations for individuals involved with the assessment of general education programs and outcomes on campus. It includes a step-by-step assessment checklist, tips for better assessment, and examples of assessment tools, methods, and rubrics for assessing a variety of key outcomes of a quality general education.

College Learning for the New Global Century

This report from AAC&U's Liberal Education and America's Promise (LEAP) initiative outlines and discusses the aims and outcomes of a twenty-first-century college education. It is also a report about the promises we need to make—and keep—to all students who aspire to a college education, especially those for whom college is a route, perhaps the only possible route, to a better future. This report, based on extensive input both from educators and employers, responds to the new global challenges today's students face. It describes the learning contemporary students need from college, and what it will take to help them achieve it.

Our Students' Best Work:
### A Framework for Accountability Worthy of Our Mission
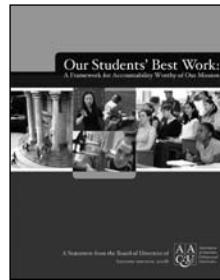
This statement, framed and approved by the AAC&U Board of Directors, updates an earlier 2004 statement and is designed to help campuses respond to calls for greater accountability in ways that strengthen as well as document the quality of student learning in college. The statement calls for a focus on a broad set of learning outcomes essential for global citizenship and success in today's volatile and competitive workplace. It makes ten recommendations to guide new accountability frameworks and presents data about what employers say about assessment and accountability.

Purposeful Pathways:
Helping Students Achieve Key Learning Outcomes
**By Andrea Leskes and Ross Miller**

The final publication of the Greater Expectations initiative reports on practices from high school through college to advance four selected liberal education outcomes: inquiry, civic, global, and integrative learning. From defining outcomes to reviewing current practices, to charting sequences of learning over time, readers will find numerous resources helpful in their curricular planning.
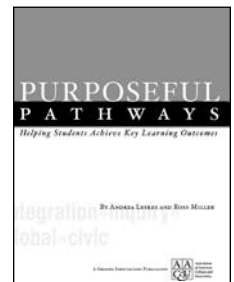
Assessment in Cycles of Improvement:
Faculty Designs for Essential Learning Outcomes
By Ross Miller

This publication features a series of reports on how selected colleges and universities foster and assess student learning in twelve liberal education outcome areas, including writing, quantitative literacy, critical thinking, ethics, intercultural knowledge, and information literacy. Moving from goals to experiences, assessments, and improvements driven by assessment data, each institutional story illustrates how complex learning can be shaped over time and across programs to bring students to higher levels of achievement of these important outcomes.
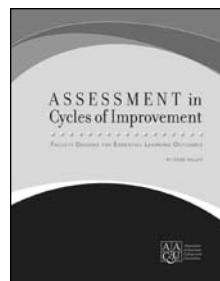
Higher Education Assessment—
Who Are We Assessing, and For What Purpose?

▸ **Diane Auer Jones,** president and CEO, The Washington Campus, and former assistant secretary for postsecondary education, U.S. Department of Education

For the past several years, policy makers of both political parties have taken to the stump to talk about the inadequacies of the U.S. higher education system, despite the fact that it remains the envy of the world. It seems odd to me that on one hand, policy makers are working hard to convince everyone that they should go to college, while at the same time they are questioning the value and quality of a college education. That is a little like complaining that the food is bad, but the portions too small.

As a former policy maker, I believe firmly that the federal government has an important role to play in protecting the taxpayer dollar, and the taxpayer spends lots of them on the Federal Student Aid program. And as a former educator, I also believe in the power of assessment as a useful tool in evaluating an individual student's performance and in monitoring the success of educational courses and programs in meeting their unique and stated goals. But the idea of the federal government moving beyond their fiduciary responsibility to enter into the world of learning assessment frightens me because any standard measures of learning imposed upon the system would serve only to destroy the very attribute that makes our system so strong and unique —the diversity of purpose and pedagogy among institutions. But basic skills and higher learning are two very different things.

It is important that the federal government confirm the financial integrity of institutions that collectively receive billions of taxpayer dollars, but this is achieved through accounting and audit standards, not student assessments. Similarly, it is important to demonstrate to taxpayers that there is sufficient return on the generous investment they make in students who benefit from federal student aid. But the return on investment can hardly be determined while students are still in college or even as they take their first jobs.

So perhaps the impetus for greater assessment comes from reports of low retention and graduation rates among current students. Well, the truth is that we don't really know how many entering freshmen will actually earn a degree because the data collection system collects data on only a fraction of students. The 60 percent of students who transfer between institutions, and all part-time students, are excluded from the system that focuses on the now-rare first-time, full-time student. Making policy decisions based on Integrated Postsecondary Education Data System (IPEDS) data is like making policy decisions for the nation based on the profile and performance of a single state.

Some will argue that we need standardized assessments so that parents and students can compare institutions with widely divergent costs to determine which offers the best value. But institutional averages will never be predictive of the benefits realized by a single individual, and will further disadvantage the hard-working, exceptional students at all but the most selective institutions. Those of us who strive for democratic meritocracy in our higher education system would love to find a way to level the playing field for all students, but in reality, nothing that we can do on the side of educational quality or student assessment will trump the advantage of admissions selectivity, or the power of aristocratic meritocracy.

So then we come to the issue of knowledge and skills among recent college graduates. Some believe that we can expand access to college, while also improving quality and increasing retention and graduation rates. When thinking of this, I am reminded of a T-shirt I once saw on a computer technician that said, "speed, reliability, low cost…pick two." For all of those employers who complain about the skills and abilities of fresh college graduates, I would offer this advice—stop recruiting students based on the institutions they attended and start recruiting employees based on the portfolio of work they present during the application and interview process.

Fortunately, rising from the frenzy of harried attempts to federalize higher education assessment, the Valid Assessment of Learning in Undergraduate Education (VALUE) project singularly holds the greatest promise for holding accountable those with the greatest responsibility for improving the quality of higher education: the students, themselves. Far from federal mandates, standardized measures or narrow learning outcomes, the VALUE project honors institutional diversity and autonomy while providing tools that will enable institutions to evaluate, and thus for students to demonstrate, the learning that they accomplished through their own hard work, dedication, and commitment. Our students deserve nothing less. ▪

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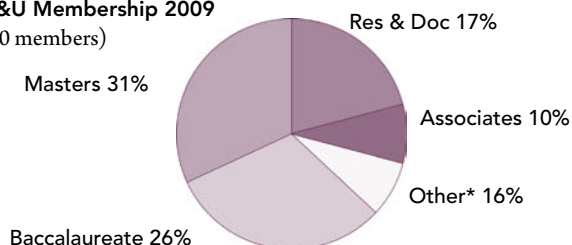
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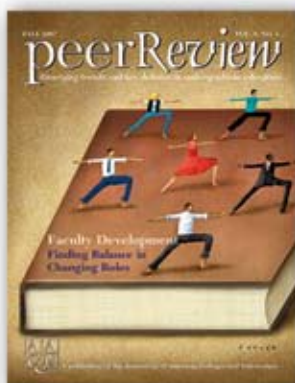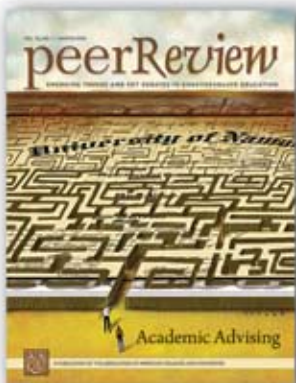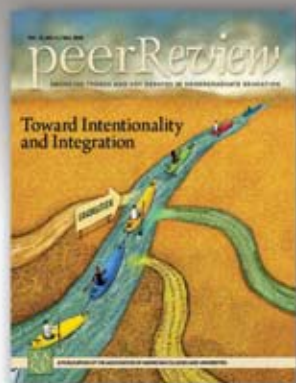
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