



Marcia Mentkowski and Glen Rogers

Complex, multidimensional abilities—such as problem solving and perspective taking—can make the connection between education, work, and citizenship, which, in turn, can rekindle public trust in higher education and stimulate college/work/community collaboration. How abilities are defined and assessed determines how useful they are to educators, employers, and the public. The authors demonstrate an assessment strategy that infers abilities from performance and compares alumni abilities with professional, national, and faculty expectations. The strategy helps educators to become more explicit about how learning transfers, and helps students to better meet immediate expectations for performance, envision future roles, and continue to learn in the face of rapid change.

Connecting Education, Work, and Citizenship

How Assessment Can Help

A national consensus is emerging that college-level learning should enable students to work effectively and to contribute as citizens. But many observers of higher education believe that college graduates are not prepared adequately for work and citizenship roles. Critics argue that graduates have *neither* the technical skills to handle entry-level requirements, *nor* the qualities, like leadership, high-level interpersonal abilities, and “professional” values, that future-oriented organizations will need. Educators are coming to understand that new knowledge is quickly forgotten if students do not have opportunities to apply it while they are still in school. New learning should connect with more effective actions. An integrated liberal arts and professional education should bridge education/work/citizenship gaps and assist graduates to meet unanticipated challenges.

We take the position here that *complex, multidimensional abilities* are needed to perform effectively in work, service, and family roles. Illuminating these abilities helps fulfill educators’ contract with society by bridging the distance between college learning and professional and civic contributions. But how best can any college know whether and how education—however transformed—is connecting with work and citizenship?

Assessing Abilities That Connect Educator, Employer, and Public Expectations

Curriculum Experience

We draw on our experience at Alverno College, a four-year liberal arts college for women in Milwaukee, Wisconsin, with 2,500 degree students. Seventy-five percent are first in their families to attend college; 22 percent are minorities; 84 percent stay in the metropolitan area after graduation. Since 1973, graduation from Alverno has required students to demonstrate eight specified abilities to an explicit level of effectiveness in the context of disciplinary or professional content: communication, analysis, problem solving, valuing, social interaction, global perspectives, effective citizenship, aesthetic response. Faculty have determined and taught these abilities in general education courses and in a variety of disciplines. They have made them explicit through criteria and assessed them in multiple modes and contexts through their performance assessment system. Alverno has tested these abilities by collaborating with many other institutions and their faculty through a variety of consortia that cross the educational spectrum from elementary to professional schools.

Abilities fostered at Alverno such as *critical thinking, effective communication, problem solving, and effective citizenship* make sense to educators, employers, and the public and thus make connections among them. The abilities reflect faculty judgment of what students will need across their lifetimes, and reflect the experience of community leaders and professionals. Faculty have made a continuing effort to connect college learning with work by involving five hundred members of the Milwaukee business and professional community as trained assessors who give feedback to students on their performance as a regular part of the assessment process. In addition, an internship program, which carries college credits, requires every student, regardless of her major, to engage in semester-long projects in businesses, government agencies, or community organizations. In these off-campus situations, she continues to develop her abilities, which are jointly assessed by an off-campus mentor and a faculty advisor. This use of external assessors and mentors is part of the effort to integrate faculty standards with professional and community expectations for Alverno's 2,500 degree students.

Even with the transformation of the curriculum to teach and assess explicitly for abilities, faculty realized they also had to invest in college-wide, in-depth studies of students and alumnae, and other professionals who are *not* Alverno graduates. Faculty asked, "Does college learning transfer to work and service and how does it happen? Are graduates prepared for future roles as well as entry-level ones, and which abilities last a lifetime?"

Institutional Assessment Experience

Our experience studying these questions shows that substantive institutional assessment can contribute to a broad consensus around what

abilities our graduates need to perform effectively after college. Such assessment can identify abilities that are needed to function effectively in work and service roles, and indicate how they are related to what graduates have learned in college. In this way, assessment can connect the expectations of educators, employers, and the public. Our research confirms that *the idea of abilities makes sense to all three groups*. Thus, connecting these sectors implies assessing abilities within work and service roles in appropriate contexts, as well as in college. If institutional assessment studies create an adequate picture of these abilities, the results can simultaneously demonstrate accountability to external constituencies and improve teaching and learning on campus.

Of course, institutions will not assess all abilities that graduates will need, nor will educators and employers limit themselves just to what can be readily or currently assessed. Disagreements about what should be learned in college and what should be learned on the job will not disappear. Colleges will continue to emphasize abilities that cross roles and settings, and organizations will continue to focus on developing their employees' job-related skills. Nevertheless, a system that identifies abilities common to education, work, and service can clarify those abilities that make sense to all sectors because they are likely to transfer across them. This collaborative activity can bring new insights into delineating which components of abilities should be emphasized at work (such as *salesmanship*) and which in college (such as *perspective taking*). The ultimate benefit is that diverse groups can come together around what to teach, where to teach it, whether abilities transfer from one environment to another, and what to assess in common (such as *leadership*).

Alverno researchers have used four distinct approaches since 1976 to determine how these abilities are developed: (a) longitudinal studies of student and alumnae outcomes; (b) studies of alumnae perceptions of the abilities used in the workplace, and of the value of learning in their own evolving life goals; (c) studies of abilities actually used by other professionals who are not Alverno graduates; and (d) studies of abilities used by five-year Alverno alumnae. Our work has led to a central research finding: *individuals are effective in a range of settings because they use complex, multidimensional abilities and integrate them in performance*.

The Connecting Idea: Complex, Multidimensional Abilities That Are Integrated in Performance

"Ability" is a communicable idea that enables students, employees, and volunteers to connect what they know with what they are able to do. It provides a *conceptual framework* for understanding what student learning looks like when it is transformed later in work and service settings. How abilities are defined and assessed makes a big difference in how useful they are to educators, employers, and the public. We view abilities as *multidimensional*; as complex combinations of skills, motivations, self-perceptions, attitudes, values, knowledge, and behaviors. Abilities become a cause of effective performance when these components are integrated.

We do not limit the definition of an ability to a unitary trait, a personality characteristic built into one's genetic code, or a skill like verbal ability. Thus, abilities are defined as *teachable*: Faculty can assist students to develop and demonstrate them through practice and assessment; graduates can continue developing them on their own; and employers can foster continued development at work.

Abilities are *transferable*. An ability enables an individual to perform effectively across a wide range of situations, and in complex and novel settings. Our research convinces us that our students transfer their abilities across college courses and across disciplines. They transfer them from the classroom to internships off campus and to their personal lives.

Abilities become transferable because *the concept of "abilities" functions as an organizing principle for role performance and career satisfaction*.

Because abilities are the frameworks on which our graduates and other professionals construct college-level learning, they can carry it with them once they leave college and move into a variety of roles. Although these persons use abilities they have learned in college, they also use abilities to create a theory of action that they test out in various work situations. They use abilities to plan, organize, and structure their performance at work. When Alverno alumnae are performing in situations that call forth their abilities, they experience job satisfaction. They perceive themselves as challenged by their work and competent in their role, which leads them to seek out additional situations that will yield similar feelings of confidence and fulfillment.

A complex, multidimensional ability cannot be observed directly; it must be inferred from *performance*. Alverno faculty use *performance assessment*—with explicit criteria, feedback, and self-assessment—as a process integral to learning by which educators diagnose, analyze, and give credit for students' development, and provide ways of understanding how to spur it forward during college. To generate post-college examples of performance for purposes of institutional assessment, Alverno researchers chose a related method—*behavioral event interviews*. Educators, employers, and government agencies in the United States, the United Kingdom, and other countries have successfully used this method. The interview collects information about performance in a particular context for purposes of assessment, and ultimately, for refining educational and training goals. These interviews can provide rich, connected descriptions of performance that make sense to educators, employers, and the public. Inferences drawn from the interviews can (a) demonstrate that college learning transfers; (b) help compare alumnae performance to professional and societal expectations; and (c) identify and define developmentally those abilities that characterize effective and outstanding performance after college. The interviews prompt insightful discussion about effectiveness by faculty and community professionals. Performance examples stimulate questions about whether a particular performance is adequate given the situation, whether a professional has met the standards

Alverno faculty use performance assessment as a process integral to learning.

of his or her profession, whether an alumna has met the standards of the faculty, and what abilities should be developed in college and at work for future roles.

The behavioral event interview was developed by David McClelland and colleagues at McBer and Company to measure multidimensional abilities in complex work situations, as part of *job competence assessment*. It is based on John Flanagan's *critical incident technique*. Alverno researchers have refined the method for alumnae studies, testing it out for work, family, and service roles. The Council For Adult and Experiential Learning (CAEL) has elaborated it for student and employee assessment. The interview is designed to demonstrate the abilities one uses in everyday activities, to capture an individual's performance in a particular context, including the setting, position, role, and responsibilities. The interviewee is asked to describe six critical incidents: three where he or she was effective, and three where things did not turn out as he or she intended. Because the interviewee is free to choose events, the interviewer collects information about the way in which the interviewee constructs the reality he or she experiences. A trained interviewer asks the participant to describe the context for each event in turn, and then guides the interview with a series of questions and probes. These include: "what led up to the situation?" "who was involved?" "what did you actually *do*?" "what were you thinking and feeling at the time?" and "what was the final outcome?" The interviewer records behaviors the interviewee believes to be critical (as opposed to having an observer record any and all behavior), and also probes the thoughts, feelings, and intentions the person had while performing. Thus, research analysts can plausibly reconstruct actual behaviors performed, rather than interpretations or biased recollections of past behavior. All the while, interviewees interpret their behavior in light of the context and their intentions. We use nominations by peers or expert judges to select professionals who are outstanding performers; faculty and research analysts independently judge alumnae events for effectiveness, carefully considering specific actions in the context of the performance and the outcome.

Since 1978, Alverno faculty and research staff have conducted over five hundred behavioral event interviews of students, alumnae, and other professionals in the Milwaukee community. We have coded nearly 2,400 events, including over eight hundred from five-year alumnae. Our alumnae studies include events from work and personal life, including graduate learning, family, and civic roles. We code these events using abilities synthesized from several perspectives: (a) Alverno's perspective reflected in abilities Alverno faculty foster in the curriculum; (b) an external "work" perspective reflected in abilities from McBer and Company research, synthesized from over 750 job competence studies in organizations, and from Cambria Consulting, a firm that has studied abilities in over fifty Fortune 500 companies; and (c) a professional and community perspective reflected in abilities from Alverno studies of outstanding professionals in the Milwaukee metropolitan area who are not Alverno graduates. Information on our results, feasibility, and use of the method by other institutions is available from Alverno's Office of Research and Evaluation.

Connecting Strategies

Demonstrating Transfer of Learning to Work and Civic Roles

To illustrate how an institution might demonstrate that abilities do transfer to work and citizenship after college, we turn to a performance of a former Alverno student who was hired in a management position because of her education. She subsequently became a volunteer in an inner-city church, where she solves problems by taking the initiative and adapting her abilities to set up a temporary employment agency.

"I knew from my experience in a corporate structure that some people had no knowledge at all of what interviewing was about. I got all the study materials I used in the corporate structure...I revamped them and I started advertising that these classes would be going on in the church basement, and then I started teaching."

Then she had to adapt again:

"I had to change everything to fit the people I was working with. Now this was my community, but I began to realize that people had never worked before. I knew they had never been in a structured interview environment and, of course, they didn't know how to go about the interview process. But I found they also didn't know how to fill out an application, and in some cases, they didn't know how to read."

Once again, she revamped her approaches, and also created motivational strategies. What was the outcome?

"People who had never known what the word interview meant finally had a chance to become involved. People who didn't believe they could learn to read and write were getting to learn to read and write, thereby increasing their self-esteem. People looked at the church as an institution of learning. It took on a different role in the community than just a worship center. It took on a different role that was more effective."

This case and others demonstrate that abilities are *transferable*: The alumna in this case uses her understanding of job interviewing to diagnose a key opportunity to make a difference in the community through training, and then elaborates her understanding to fit the population. The volunteer demonstrates abilities that are goals of most educators and of society. She accurately reads the feelings of those she is teaching, and, by working on her own time, she lets them know she really cares and that she is doing it for them. As a result, she evokes mutual care and responsibility in return.

"People who have succeeded...should be willing to give something back to the community. But I saw that this was really not happening...people like me get requests to help out...it would always be on company time. Doing something on my own time was the way to show people that they can succeed, that there are knowledgeable people who do care."

Examples like these reinforce the local community's trust that our alumnae can be counted on to contribute as citizens and that abilities learned in college account, in part, for their success.

Comparing Alumnae Performance to Professional, National, and Educator Expectations

To illustrate how an institution might connect abilities developed in college and used afterward to professional, national, and their own faculty's expectations, we turn to a performance that shows an alumna using a range of abilities in concert. This five-year graduate of Alverno is in a novel, emotionally laden situation that she has not experienced before. Excerpts from this event allow us to examine both intellectual and interpersonal abilities in a "real world," fast-paced situation, where there is potential for harm or benefit to persons.

The work environment is a neo-natal unit of a hospital. A premature baby is dying. The doctor and parents have made the decision to take this baby off the respirator. With the nurse in support, the doctor asks the parents if they want to hold the baby. The mother agrees. Aside, the doctor then tells our nurse, "We're going to take this baby off the respirator and you take it in and deal with the parents." The nurse comments to the interviewer:

"The doctor was too upset. He couldn't come in there. He just kept asking me, 'How's it going? How's it going?' It's real difficult for doctors to let their babies die."

The parents and the nurse take the child off the respirator and the nurse gives the baby to the mother to hold for the first time since the baby was born:

"The dad stands back and you can see he's torn up inside. I said to him, 'Do you want to hold her?' and he said, 'No, no, I don't want to hold her.' The mom says, 'Hold her, hold her,' and he won't do it. So I picked up the baby and I put the child in her dad's arms."

Throughout this interview, the interviewer is skillfully asking questions that focus on what happened and what led up to the situation; what she actually *did*; who else was involved; what she was thinking, feeling, and intending at the time; and what was the result. The interviewer is gathering information about the combination of knowledge, motives, values, and skills that led to this decision. The nurse describes using several sources of information that led her to thrust the baby into the arms of the father. She has learned from medical research that:

"Parents who know what the baby looks like and who hold the baby have fewer ugly dreams. They're less likely to fantasize about the baby later and they feel less guilty about not having done enough for the baby."

She has attended a course on death and dying. She also draws on prior conversations with more experienced nurses and recalls her observations that:

"Many nurses will not take a baby that is dying because they can't handle it."

She also uses her experience with adults who were dying:

"I encourage family members to touch them because touch is very important, even if a person is dying. A lot of people don't like to do it in our society."

We learn how her values relate to her decision to actively intervene:

"I can handle it because I feel that God is taking care of these babies. We've done whatever we can and now it's His turn to take them. God takes care of us, you know. He puts us through a lot but we're probably stronger, more aware of our feelings, even though it's hard to say that sometimes in the beginning."

What happened when she put the baby into the father's arms?

"He just about threw the baby back at me. I said, 'No, no, just hold her.' And he calmed down, and he rationalized it all, and he was very appreciative of what had happened. The baby died in both their arms. So it was very gratifying when the dad came back later and said, 'I really appreciate what you did for us, and it was real important for me that I did that thing for my baby when she was dying.'"

The nurse's performance reflects integrated components of several abilities. For example, it displays elements of *helping*, *influencing*, and *coaching*. *Helping* is a nursing ability common in the profession; because it entails judgment, it is very complex. *Helping* involves taking action to personally help a patient or subordinate, or demonstrating a concern for the other person's needs, where both the nurse and the person she is helping are seeking the same goal. However, the nurse is doing more than helping these parents get through a crisis situation. She is constructively *influencing* the behavior of the parents. In our study of nursing professionals who are not our graduates, only the most experienced and educated nurses do this. Here, our alumna compels the father to hold the dying child in his arms because she believes that this will ultimately lead to a more positive result for him and his wife. We also see her goal of lessening the father's potential guilt. Here we infer an ability that is even more sophisticated: *Coaching* involves influencing and supporting others to take greater personal responsibility for important tasks. By studying the performance of abilities, educators can improve teaching and assessment back on campus, and can show accountability to professional standards.

But the public is no longer satisfied to leave the accountability question to educators and professionals alone. It wants to know "How are your graduates doing?" Admittedly, the public interest is vague and undefined. But educators and the professions can work to describe the specific abilities that characterize the most effective performance, and can then inform the public interest by describing these broad abilities in context. Then, public representatives can enter this discussion, where appropriate, and contribute to setting standards.

Consequently, it is important to step back from individual cases, synthesize across them, and make even broader comparisons to determine which abilities best describe *effective* performance. As an example, let us return to the Alverno study of five-year alumnae abilities. *Taking initiative* is frequently coded by research analysts in one sample of eight hundred events. It is also coded frequently in our studies of other professionals, particularly managers and executives, as well as nurses. It involves taking actions, often in situations that include organizational or interpersonal barriers, and demonstrating the persistence, emotional stamina, and personal responsibility needed to act effectively.

Other abilities discriminate or describe even better the more effective alumnae performances. More effective alumnae, for example, are strongly motivated to do something better, to strive for a standard of excellence. Effective graduates also continuously seek out opportunities where they can take action to use time more efficiently and resources more wisely. We also see intellectual abilities like *conceptualization, information seeking, and diagnostic pattern recognition*.

The most effective alumnae are also more likely to show *positive regard*. This is the psychologist's term for faith and hope. That is, they show respect for others and they see them as capable and worthy individuals: the nurse did not denigrate the doctor for leaving the situation or the father for not wanting to hold the baby; the volunteer focused on her clients' potential rather than their limitations. The more effective graduates are also likely to act toward *developing others*, taking action not just to achieve something, but also to develop potential.

We still have the problem of educators' expectations. How do these abilities compare to what educators want? Educators have the greatest stake in a different set of abilities that make up what they would label *perspective taking*. Perspective taking is at the heart of a liberal education. Most educators believe that it makes a difference in performance. In the alumnae coding scheme, *sensitivity to individual differences, accurate empathy, reflective valuing, and perceptual objectivity* are abilities that resonate to this overarching one. To illustrate *perspective taking*, let us return to the nurse in the neonatal unit. She learned that she could help this family go through the dying process and discovered a highly effective action that worked well in that situation: Just taking the baby and putting it in the arms of the father. But faculty want to know if she blindly uses this same strategy in the next situation. In an almost identical situation, the nurse described sitting with another set of parents:

"In this particular culture, the women have to do everything for the baby. It's for the dad to be staunch and that's how he was. But he did touch the baby and I think that at that point, it was my decision that was enough. I would not make this man hold this baby. So I don't just blatantly say, 'You have to hold your baby.' You have to determine the culture and what you're dealing with, because in that situation it was different."

Perspective taking, as characterized by *sensitivity to individual differences*, is determining what the nurse does. Because perspective taking is central to a liberal education, faculty are especially interested in

how this ability relates to alumnae performance after college. Based on our studies of Alverno alumnae performance five years after college, the workplace requires a more basic kind of perspective taking and does not seem to correspond entirely to Alverno faculty's more sophisticated definitions. Alumnae do show *perceptual objectivity*, a nonjudgmental understanding of another's perspective when it is different from their own. This ability is associated with the level of their career achievement. Our alumnae also often demonstrate *reflective thinking and valuing*. They reflect on their own behavior, feelings, and beliefs, and this reflection results in a continuing search for new insights about themselves and their values. They also relate their values to their actions and decisions and show *sensitivity to individual differences and accurate empathy*. They use awareness of their own role and the role of others in the group in shaping the work and deciding about the process. But faculty expect still more.

Alverno faculty were hoping to see alumnae performances at the upper reaches of faculty-defined perspective taking. The arts and humanities faculty expect an alumna to make personal judgments only after examining multiple contexts and multiple perspectives, and, even then, to recognize the limits of her judgment. They expect her not only to discuss similarities and differences she sees between various world views and her own, but to go beyond knowing the values of others to imagining what it is like for them to hold these values. They expect her to enter into other perspectives in an attempt to appreciate their values more fully, and to enable herself to use different points of view to address significant issues. For example, when a group of Alverno humanities faculty were looking through cases for perspective-taking abilities, they also wanted to see evidence that alumnae valued understanding another's perspective for its own sake. They expected alumnae to be engaged in a continuing effort to expand their own basis for judgment and understanding—quite independent of the immediate benefit of knowing another's position so that she can advance her own preexisting commitments or organizational goals.

Perceptual objectivity does, however, provide alumnae with the cognitive potential for reaching beyond the conceptual frameworks that currently shape their consciousness. For example, alumnae effectively mediate divergent viewpoints and actively explore complexity instead of ignoring or stepping around it. The most sophisticated alumnae withhold judgment, work to understand and integrate diverse views, and challenge their own understanding. But alumnae were not likely to describe situations where they recognized that some assumptions that others held were so different that they could not expect to reconcile them with their own. Thus, work situations that alumnae described do not seem to demand the highest form of this humanistic ability, at least by five years after college.

But there are hints that the higher forms of perspective taking are critical to the workplace. We believe that employers who are coming to understand that this ability is essential for dealing with a global economy will work with educators to develop sophisticated varieties. For example,

Alverno faculty were hoping to see alumnae performances at the upper reaches of faculty-defined perspective-taking.

Alverno management faculty and a major corporation are now forging an alliance to develop international business simulations that teach perspective taking.

The research findings support the emphasis that our own institution places on the development of *valuing in decision making*, a vital, complex interaction that is summoned whenever an individual is called to consider her commitments and goals in multiple contexts and roles. Here at Alverno, faculty teach and assess for this valuing ability across the curriculum and review alumnae cases to clarify how this and related abilities are exercised in complex performance five years after college. In the last three years, Alverno faculty have expanded the definitions of the valuing ability to illuminate the integration of knowledge, ethical judgment, and action. They are paying careful attention to elements such as showing *moral sensitivity and contributing to the development of values in the broader community*. The student is expected to use the perspectives and concepts she is studying to integrate the thoughts and feelings of herself and others in making moral judgments, and to explain how her commitments and decisions contribute to the development of principles and policies in the broader community.

Alumnae examples of abilities such as *perspective taking* and *valuing* five years after college further illuminate the abilities that employers, the public, and faculty really want to see: Persons with integrity who can be trusted with *leadership*, who can execute our shared human values, and who make effective decisions that benefit us all.

Benefits of Connecting Education, Work, and Citizenship

Connecting education, work, and citizenship can help educators discern complex, multidimensional abilities that are integrated in effective and outstanding performance and that are essential for new roles at work and service in a future society. These connections help define abilities broadly enough for college learning and ensure that abilities can be linked to specific roles and settings, all the while providing a basis for refining assessment criteria. They expand faculty understanding of how abilities are performed in the complex dynamic of daily life, and how abilities transfer to situations alumnae are likely to experience.

There are some overall benefits for everyone. Abilities become defined *developmentally* for college learning. For example, developmental differences between helping, influencing, and coaching in nursing performance already help educators challenge and support students step-by-step toward more sophisticated performances; graduates can use this picture to continue improving on their own. Employers can also use developmentally sequenced ability definitions to assist individuals to advance in the workplace. Together, both sectors can create improved performance criteria and standards. Good examples can show how a performance is integrated, how it is adapted in roles and settings, and how it continues to improve. Good examples can show how our noblest and highest goals as educators and the most pressing needs and expectations of society can be interwoven into a seamless vision of integrated

performances and abilities. Assessing abilities that connect college learning with work and citizenship can develop consensus around what to teach and how to assess, ensure a broader accord on educational goals and standards, and create a clearer vision of effective postcollege performance. While such efforts require a joint investment of educators, employers, and public representatives, such evidence—that graduates can meet and exceed faculty, professional, and national standards—has the potential to rekindle the public trust in higher education.

Note

This article is based on Mentkowski's 1991 paper commissioned by the U.S. Department of Education ("Designing a National Assessment System: Assessing Abilities That Connect Education and Work") and her subsequent presentation ("National Expectations and Institutional Responsibility: Connecting Education, Work, and Citizenship Through Assessment") at the Seventh AAHE Conference on Assessment in Higher Education in Miami Beach, June 1992.

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