

Journal of

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Aims and Scope: The *Journal of Applied Learning in Higher Education* (JALHE) is an international and interdisciplinary journal serving the community of scholars engaged in applied learning at institutions of higher education. Its purpose is to advance scholarship on applied learning by providing an outlet for empirical and theoretical work related to this pedagogical practice.

Peer Review Policy: All papers submitted to JALHE undergo a rigorous peer review process, beginning with an initial screening by the editor prior to an anonymous review by at least two independent experts. The editor will convey a final decision to the author, along with constructive feedback from the two reviewers.

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From Celebration to Critical Investigation: Charting the Course of Scholarship in Applied Learning

ROY SCHWARTZMAN

University of North Carolina at Greensboro

KELLY BOUAS HENRY

Missouri Western State University

Applied learning refers to learning experiences that take place outside traditional classroom settings. Examples include study away, service-learning, undergraduate research, and internship/practical/clinical experiences. As these pedagogies have increased in frequency over the past twenty years, the number of outlets devoted to the publication of scholarly work related to them has not kept pace. The Journal of Applied Learning in Higher Education (JALHE) attempts to fill that gap, providing an outlet for research and theory that critically examines applied learning's impact and purpose using multiple methodological and disciplinary approaches. The initial volume of JALHE showcases work in this vein from a wide variety of disciplinary backgrounds and highlights areas ripe for future research.

Now is the time, we conclude, to build bridges across the disciplines, and connect the campus to the larger world. Society itself has a great stake in how scholarship is defined. (Boyer, 1990, p. 77)

Ernest Boyer's provocative epigraph captures much of what the *Journal of Applied Learning in Higher Education* (JALHE) seeks to accomplish. Applied learning figures prominently in national higher education reform efforts. In an era when few, if any, of higher education's

long-held presumptions, such as the value of the liberal arts and of tenured professors, can be taken for granted, educational leaders have become more responsive to the demands of various stakeholders—businesses, governing boards, legislatures, parents, community organizations, local residents, regional accreditation agencies, and students. In particular, higher education institutions are learning to use scarce resources more efficiently to adapt to multiple learning styles and to produce measurable learning outcomes that meet the needs of industry and society.

The reform of scholarly research charts a similar path. Boyer (1990) comments that “future scholars should be asked to think about the usefulness of knowledge, to reflect on the social consequences of their work, and in so doing gain understanding of how their own study relates to the world beyond the campus” (p. 69). He goes on to praise fieldwork experiences in various disciplines “that involve students in clinical experience and apprenticeships” (Boyer, 1990, p. 70). The evolution of scholarship clearly involves a deepening concern for the experiential aspects of education. This essay will chart the course of JALHE by briefly tracing its historical and intellectual lineage, then embark on navigating it through the ongoing scholarly dialogues related to educational theory and practice.

CONCEPTUAL TOPOGRAPHY OF APPLIED LEARNING

Before proceeding, a definition of the central term in this journal’s title requires clarification. “Applied learning” refers more to a spirit or movement in education than to a definitively bounded subject matter. It designates the kinds of pedagogical principles and practices associated with engaged scholarship, communities of practice, civic engagement, experiential education, and critical pedagogy. Diverse as applied learning may appear, all its manifestations share certain characteristics. Concrete experience, “learning by doing,” lies at the core of applied learning. This pedagogy represents active learning at its most literal level, the activity of putting intellectual principles into practice.

Applied learning may be curricular or co-curricular, connected with coursework or a learning experience that occurs through other institu-

AUTHOR NOTE: Roy Schwartzman, Ph.D., Department of Communication Studies, University of North Carolina at Greensboro; Kelly Bouas Henry, Ph.D., Department of Psychology, Missouri Western State University, St. Joseph, MO. Correspondence concerning this article should be addressed to: Roy Schwartzman, Dept. of Communication Studies, 109 Ferguson Building, University of North Carolina at Greensboro, Greensboro, NC 27402-6170; e-mail: docroy@triad.rr.com

tional means (such as student service projects). These practices always have a central educational component that—as service-learning practitioners quickly observe—distinguishes them from volunteerism conducted solely for its intrinsic value. Although they extend beyond conventional classroom education, applied learning practices complement rather than replace other pedagogical methods. Applied learning typically becomes manifest in higher education as one or more of the following kinds of pedagogical practices: study away (in an off-site environment, such as studying abroad or community-based learning), service-learning, independent research, and internships/practica/clinical experiences. These practices always have a central educational component which distinguishes them from out-of-class activities conducted solely for their intrinsic humanitarian value.

The distinction between applied learning and more abstract theoretical knowledge is articulated most crisply by philosopher Gilbert Ryle. According to Ryle (1949), intelligence melds two kinds of knowledge, which he labeled “knowing that” and “knowing how.” “Knowing that” encompasses theoretical understanding, the propositional knowledge typically reflected in mastery of facts and principles. “Knowing how” involves the demonstration of skill in performing a task. The integration of these two types of knowledge proves crucial in what counts as intelligence. Imagine someone learning how to play a game. The “knowing that” component deals with internalizing the rules to enable play. The “knowing how” aspect refers to the ability to execute moves in the game. Scholarship on applied learning investigates this relationship between intellectual understanding (comprehending the rules, knowing the system) and skillful practice (taking appropriate action).

Theoretical knowledge without practical application creates the Ivory Tower intellectual incompetent to face the everyday challenges of life. In the film *Defiance* (2008), a Jewish refugee who cannot hammer a nail describes his vocation as “an intellectual,” which generates the puzzled reply from his comrade: “This is a job?” On the other hand, practical skill without theoretical understanding cannot generate desired results consistently. The swiftest runner cannot win the race without knowing which direction to run. Ryle (1949) suggests that blending theory with practice enables a learner to transcend mere training and move toward initiating the self-discipline that characterizes lifelong learning: “To be intelligent is not merely to satisfy criteria, but to apply them; to regulate one’s actions and not merely to be well-regulated” (p. 28).

The concepts of applied learning often infused the educational literature in discussions of vocational education. Researchers noted that a knowledge-based economy would require the flexibility to apply knowledge to a variety of tasks, and this versatility could arise only through putting theory into practice by engaging in concrete activities beyond the con-

finer of the traditional classroom (Kolde, 1991). Ongoing calls for greater relevance of higher education have helped to accelerate the pace of applied learning and extend it beyond job training. For most of society beyond academia, the true test of knowledge lies in its connection to lived experience.

RATIONALE: WHY THIS JOURNAL? WHY NOW?

The development of any new scholarly journal responds to an intellectual need, the proverbial “gap in the literature” recognized in every thesis or dissertation. The need for this journal is both profound and persistent. Applied learning programs have proliferated far more rapidly than the scholarly tools to examine the merits of their design and the measures of their effectiveness. While the popularity of applied learning generates celebration that the Ivory Tower is becoming part of the surrounding neighborhood, it also triggers consternation. As mushrooming numbers of individual case studies accumulate, the speed of implementing various applied learning practices has outpaced the ability to determine systematically what works best, when, and why (Densmore, 2000; Eyler, 2002).

The chronological history of this journal begins with the Conference on Applied Learning in Higher Education (CALHE), developed and hosted by Missouri Western State University in St. Joseph. The conference was born out of Western’s statewide mission as Missouri’s “applied learning” institution, a designation that became official in 2005. Like many universities, Western already had institutionalized many forms of applied learning experiences. Beyond simply practicing applied learning, the university sought to implement its mission by providing a venue to promote best practices of applied learning that could serve the state, region, and nation. The conference emerged as a way to meld the often abstract realm of institutional mission statements with the often under-theorized and under-analyzed practice of applied learning. CALHE offered to bring state-of-the-art training, research, and analysis through the top experts in various areas of applied learning—thereby putting the university’s mission into practice through scholarship and intellectual dialogue.

Shortly after the first CALHE in 2006, we began to see that a related way to support the university’s mission and to deepen the conversations regarding applied learning was to develop a peer-reviewed outlet that faculty and practitioners could turn to as a way to engage in scholarly discussions related to applied learning. The conference was becoming a provocative avenue for sharing ideas about applied learning across various disciplines. Unfortunately, it was limited by the ephemeral nature of such events. Energetic exchanges of ideas occur, stimulating further reflection, and then those exciting conversations gradually fade after the conference concludes. The narcotic everyday routine of paperwork

and other mundane tasks quells the momentum built at the meeting. The journal offers an ongoing, permanent resource for restoring and sustaining vibrant intellectual discourse.

The journal also addresses an issue that has emerged on many college and university campuses. CALHE emerged at a time when higher education was (and still is) embroiled in one of many dilemmas that pit traditional academic perception against current academic practice. On one hand, the realities of academic life at all levels place increasing demands on faculty to serve and teach. The chronic shortage of personnel willing to engage in governance and leadership means that a broader range of these administrative duties filters into the everyday duties of faculty and staff. Increasing teaching and service loads driven by demands for efficiency translate to more students and more tasks with fewer resources. Time for discipline-based research may erode in the face of these demands, especially in a social climate where only classroom instruction is conceived as “genuine” academic labor. On the other hand, promotion and tenure committees still tend to prioritize scholarship, especially at research-oriented institutions. How can these competing demands be reconciled?

Applied learning often falls through the cracks of faculty evaluation and reward systems in higher education. If understood solely as a pedagogical practice, it remains segregated in the “teaching” realm of evaluation. The conference and the journal treat the boundaries between teaching, research, and service as permeable. Too often, especially at research-oriented universities, teaching and service occupy distinctly lower levels in the evaluative hierarchy. The *Journal of Applied Learning in Higher Education* is dedicated to demonstrating that pedagogical practice—much of which involves service—and rigorous research are not only compatible, but symbiotic. The nature of the journal reflects the mutual fertilization among the four types of scholarship Boyer (1990) articulates: scholarship of discovery, scholarship of integration, scholarship of teaching, and scholarship of application. Within the pages of this journal, the practices and principles of different disciplines are integrated by their shared goal: to probe the theoretical grounds, best practices, and implications of applied learning in all its forms. This journal also provides a scholarly forum for conducting the scholarship of engagement (Boyer, 1996), the examination of pedagogical practices that implement the traditional institutional mission to serve its community and constituencies. This scholarly approach to service-related activities reunites the public service activities of higher education with the critical analysis that constitutes the core of academic research.

Some excellent peer-reviewed journals currently address different aspects of applied learning, but few scholarly avenues have provided a single forum to engage multiple disciplines in discussions of all aspects

of applied learning. By providing such a venue, this journal broadens the reach of scholarship beyond disciplinary restrictions (thereby fostering integration) and adds depth to scholarship of teaching by covering multiple pedagogical practices (not only undergraduate research, service-learning, etc.). In many ways, the movement of engaging students in experiential learning has grown up in silo form, with different forms of applied learning having their own organizations and emphasizing differences between disciplines and practices rather than seeking shared concerns with the nature and practice of applied learning *per se*.

The different forms of applied learning can inform each other and need not remain segregated in separate journals. For example, faculty who have for many years engaged in undergraduate research have used critical reflection to further student learning (though often such work was couched in analysis of methodological design and statistical inference). Practitioners of service-learning who wish to go beyond reflection based on sharing reactions to more analytical reflective practice could probably learn a great deal from the work of undergraduate research directors and practitioners on how to integrate that sort of critical reflection into a service-learning project. In addition, undergraduate research directors might be pushed by faculty who think a lot about finding good internship sites to consider ways to integrate undergraduate research into internship experience that relates the research to potential employment.

In its fetal stages, CALHE began as an internal, single-institution poster session with fewer than ten poster presentations. In 2009, the conference had more than 200 registrants from 17 states and Australia. Through JALHE, those who are committed to applied learning, and the scholarship of teaching and application, will have a way to document and disseminate their work. The journal's promotion of deeper discourse between the different forms of applied learning can build a foundation for understanding and furthering best practices in all forms of experiential education.

THEORETICAL MILIEU OF APPLIED LEARNING RESEARCH

Many years of reviewing conference papers, journal manuscripts, and grant proposals reveal a narrative structure that has become too common in the scholarship on applied learning. The structure constitutes what could be called the cheerleading model of self-advocacy. Too many submittals to conferences, journals, and grant review boards use a positive experience with a particular applied learning experience to make a generic argument in favor of applied learning *per se*. These self-congratulatory narratives of unqualified success invite readers to worship at the altar of applied learning. The scholarship on applied learning, however,

must move from love fest to knowledge quest. A productive first step in this direction is to recognize and discuss the pitfalls of projects, the limits of experiential learning, and more nuanced ways to evaluate quality of outcomes. For example, the problems associated with teaching about the Holocaust via simulated starvation diets and mock persecutions has led the Anti-Defamation League (2006) to issue a statement condemning simulation-based Holocaust education. Research on best practices should offer insight about what to avoid as well as what to emulate. Rather than offer a one-shot case study with the narrative pattern “Lo, we did it, and behold: it was good,” research must probe the rationale for the results it reports. How does a particular project fit within the broader intellectual conversation regarding how to structure, administer, and assess applied learning? Another way to pose this question would be to inquire, along the lines of Fink (2003), about how a specific study is driven by and expands upon the relevant pedagogical and disciplinary theories.

Part of this larger conversation concerns the role applied learning can play in the discourse regarding higher education. Several examples illustrate the intriguing issues studies of applied learning might confront. One issue involves equipping students to become more independent, lifelong learners. Early exposure to a directed research experience might enable students who are conditioned to become received knowers—passively and obediently responding to authority but not initiating ideas—to acquire greater ownership over their ideas. Guided research activities could recondition students to become more independent thinkers by prioritizing invention over retention. Rather than implement a master plan of “please the teacher” by repeating whatever the authority figure wants to hear, research could guide the capacity for creative risk-taking, a key factor in critical thinking and problem solving. Future studies might investigate the connection between such research experiences and innovative student achievements beyond the classroom.

Apprehension about the competing forces of efficiency and effectiveness looms over the higher education landscape. The narrow constraints of commodification have positioned students as consumers to be placated, but as cheaply and quickly as possible (McMillan & Cheney, 1996; Schwartzman, 1995; Schwartzman & Phelps, 2002). This discourse of efficiency clashes with the competing pressures of demonstrable effectiveness. The result: paradoxical mandates to increase class sizes but also increase “customer service” to each student, or broaden access to higher education but improve standardized test scores and accelerate graduation rates. The list could continue indefinitely. Applied learning, however, offers pedagogical practices that have navigated the contrasting demands of higher education and external constituencies. For example, what lessons from sustainable campus-community partnerships in

service-learning projects might generalize to campus-corporate administration of internships? How does applied learning demonstrate the practical relevance of educational experience (a *sine qua non* of commodification) while also improving field-specific intellectual expertise (the essence of academe)?

METHODOLOGY MATTERS

Thus far, we have discussed the “what,” “when,” and “why” of scholarship on applied learning by tracing its theoretical parameters, intellectual history, and social justification. Attention now turns to the “how,” which constitutes the modes of conducting research relating to applied learning. Much scholarship on applied learning relies on self-reports, especially from student participants, as a major source for evidence of learning outcomes and social effects. Such self-reports, especially when used as the sole data points, raise significant methodological concerns. These challenges should generate further scholarly reflection on how self-reports are used and should stimulate researchers to employ multiple methods that can produce more diverse documentation of applied learning experiences. The following concerns should urge scholars to employ a variety of evaluative measures when seeking to determine the value of applied learning.

Eyler (2002) notes that self-reports from student participants do not constitute sufficient evidence of successful educational outcomes or social impact. She raises the fundamental issue of validity: anecdotal self-reports cannot consistently or systematically link experiential learning inputs (e.g., program design, student demographics, nature of the learning experience) with personal or societal benefits. Schwartzman (2002) details some of the methodological challenges when he expresses concerns over the heavy reliance on self-reports in the service-learning literature. First, many survey instruments measure attitudes regarding the applied learning experience. It becomes difficult to correlate attitudinal tendencies with behavioral outcomes, especially when the desired outcomes include long-range or ongoing behavioral changes. For example, studies may attempt to show a project increased civic engagement by reporting a significant increase in likelihood to participate in activities associated with responsible citizenship, such as voting. Yet, how many of these studies actually track whether participants eventually engage in the desired activities? More studies of observable effects through direct observation and longitudinal data collection can document not only the immediate success but the long-term staying power of applied learning.

Excessive reliance on self-reports also invites systematic bias. Gelmon (2003) observes that community partners are likely to overemphasize positive service-learning experiences and underplay any draw-

backs, because they fear that any negative feedback might jeopardize future supplies of labor. This concern could extend to other applied learning activities. Host universities might be reluctant to report negative experiences with study abroad students as they could endanger reciprocal agreements with institutions that sent the students. Site supervisors of interns might offer overly positive performance appraisals to protect the continued infusion of low-cost labor.

Self-reports from students may suffer from distortion on several levels, including social desirability bias, self-justification, and reciprocity. Each of these difficulties deserves further reflection. Discussing research on service-learning, Pritchard (2001) identifies social desirability and self-justification as factors that might taint results: "When surveys are used to evaluate the success of an effort, particularly at its completion, the respondents usually know what answers the evaluators want and are also predisposed to rationalizing their own investment of time and effort" (p. 24). Most applied learning projects include a rather explicit statement of desired outcomes. Even without a pre-established outcome for the specific project, the social and educational goals tend to be transparent: study abroad increases cultural awareness, undergraduate research enables acquisition of discipline-specific knowledge, service-learning aids clients of community organizations, internships develop job-related skills. End-of-project surveys also invite false or exaggerated positives as ways to avoid cognitive dissonance that might arise from admitting failure to achieve the project's objectives. Finally, reciprocity introduces potential distortions if respondents feel morally obligated to "return the favor" of a stakeholder by skewing evaluations toward the positive side. Even with properly designed questionnaires, a study abroad student may rank a host university's academic programs as outstanding based on the institution's hospitality rather than its academic quality. In fact, many assessments of applied learning experiences may require substantial reconsideration to improve their validity. Minimally, the tendency to generate "false positives" should raise concerns about reporting self-evaluations absent some type of comparative scales with control populations that establish evaluative norms (Darby, 2008).

Another methodological challenge lies in distinguishing satisfaction from learning outcomes and social impact. Too often, success of applied learning initiatives tends to be judged by measures of positive affect. Put more directly, popularity presumably proves success. Especially in times of economic constraint, applied learning must pay more tangible dividends than spreading happiness. Neil Postman (1984) has offered ongoing cautions about confusing entertainment with education, noting that highly engaged students may not have learned much despite their expressing deep satisfaction with a learning experience.

In fact, enthusiastic appreciation of applied learning needs to be tempered by carefully determining which measures would suffice to support the positive impact of an applied learning experience. The support invoked here refers to what would count as evidence for various constituencies, including legislators and funding agencies. Frankly, few people outside the walls of academia find the results of student feedback particularly compelling because they recognize the subjectivity of even the most statistically saturated evaluations. One pedagogical strength of applied learning is that it offers many other types of measures from multiple stakeholders that can document outcomes. For example, a service-learning project could document the number of clientele a community organization served prior to the project compared to the number the project reached. This kind of documentation provides demonstrable evidence that a project extended the capacity of a service agency, an especially powerful statement if the agency already has been recognized as vital to the community.

When several indicators demonstrate similar outcomes, the conclusion becomes much stronger. Applied learning experiences are amenable to many assessment measures in addition to (or instead of) subjective self-reports from students. Several academic fields have developed quite refined measures of learning outcomes, and these field-specific measures could be administered to compare students who undergo applied learning with their counterparts who participate in traditional classroom instruction. External constituencies, such as community partners for service-learning or professional practitioners for field experiences, could document how student involvement affected organizational practices or administer independent assessments (such as knowledge of field manuals) to determine levels of practical knowledge. Interns might receive performance appraisals from multiple evaluators rather than only from a site supervisor who feels compelled to maintain a positive relationship with the academic institution. A long-term assessment of any participant in applied learning could consist of making that student a mentor for subsequent students, who would then evaluate the quality of the preparation they received for their educational experience.

Research on applied learning can catapult beyond the “testimonial of success” mode by going beyond a one-dimensional pre-test/post-test design. This methodology measures student opinions or learning outcomes before and after an applied learning experience and attributes improvements to the project. Frequently these designs fail to incorporate controls or benchmarks that would enable the researcher to isolate the “value added” uniquely from the project itself. For example, would similar outcomes have resulted from less expensive, less labor-intensive, less risky instructional techniques? How do the experiential project’s outcomes compare with the same material taught in a non-experiential format?

Does the study control for the instructor or supervisor of the project, or are outcomes the artifact of the administrator rather than stemming from the project itself? Which demographic factors are controlled? For example, does a study discussing the impact of a study abroad program include comparisons or controls across different nations? Could the demonstrated impact of a study abroad program result more from the nature of a particular national culture or university system than from the international experience?

The applied learning literature also could benefit from more vigorous longitudinal studies, especially those that track long-term behavioral patterns attributable to applied learning experiences. Some excellent work has been done on tracking specific programs, such as service-learning partnerships, over time (e.g., Keen & Hall, 2009; Kiely, 2005). Still, few findings have accumulated that document the extent to which students independently embark on activities consistent with the objectives of their applied learning experiences. In short, are students applying the lessons of their applied learning? The research questions in this area seem deceptively obvious, yet they have paramount significance for the long-term justification of applied learning practices. Consider only a few examples. Do students who study abroad initiate or participate more frequently in organizations that further intercultural awareness and collaboration? To what extent do international experiences reduce ethnocentric attitudes and behaviors? How are the membership numbers of international student groups correlated to the rates of study abroad experiences? Do study abroad participants exhibit distinctive patterns in their career choices that leverage the value of their international experience? Have field experiences been correlated with better qualified applicants for positions in those fields? How do in-field placement rates of student researchers compare with those of students who did not engage in undergraduate research? How has the undergraduate research experience equipped alumni to (a) conduct research outside their field, or (b) embark on professional duties that do not involve research in the academic sense? Closer tracking of student participants as well as other constituencies over an extended period of time would begin to answer these questions and many more that linger.

Research on applied learning could reap substantial benefits from mining the rich but often untapped data from voices rarely heard in scholarship that plucks the low-hanging fruit of student self-reports. More extensive explorations of input from constituencies such as applied learning program administrators (e.g., service-learning, study away, and internship coordinators), community members, site supervisors, clientele served in community-based projects, or students and faculty in host universities abroad would broaden the conversation beyond faculty reporting their students' opinions to other faculty. The impact of applied

learning research also would intensify if it embraced public policy issues more directly. For example, how do legislators and funding agencies define successful applied learning? How do their criteria and perceptions square with those of academics? What might account for or correct misalignments? How could academic expectations for applied learning interface better with desired political and social outcomes?

IN THIS ISSUE...AND BEYOND

The contents of this issue span a broad scope of applied learning, illustrating the range of pedagogical practices that can generate productive intellectual discussion. The articles begin with an analysis of the role of reflection in applied learning and how to develop reflection tools that can facilitate learning while accurately documenting the nature of the learning experience. The scholarship in the rest of the issue covers a wide array of concerns: an alternative certification program centered on experiential components, a field experience that connects coursework with professional practice, the impact a rubric to assess student learning can have on student motivation in an experiential setting, and a service-learning project that enables teacher candidates to develop their Spanish skills while teaching basic English. Together, these articles provide a sample of the range of scholarship that applied learning can generate. Individually, each article raises issues and questions that can stimulate ongoing research.

“Generating, Deepening, and Documenting Learning: The Power of Critical Reflection in Applied Learning,” by Sarah L. Ash and Patti H. Clayton, addresses the importance of the careful and purposeful use of reflection to motivate and measure student learning outcomes. Ash and Clayton (2009) note that the term “reflection” is somewhat problematic in that it suggests a reactive, emotional analysis to the events that take place in an applied learning situation rather than a critical analysis of those events. Thus they use the term “critical reflection” to connote this more analytical process that has been linked so closely to student learning (Eyler & Giles, 1999). Henry and Kempf (2005) found that faculty may use critical reflection far less than they actually prefer. Ash and Clayton call for faculty who supervise applied learning to intentionally design critical reflection around learning goals. The piece provides an enormous resource to faculty who too often rely on an end-of-term reflection paper (which rarely gets feedback to students in a timely fashion) or journaling that degenerates into sharing observations rather than analyzing those observations in light of learning goals for the course.

In addition to providing a powerful pedagogical tool, Ash and Clayton’s work inspires us to think in terms of how student assessment might not just feed into a gradebook, but into a scholarly analysis of

how well our instructional design worked in terms of facilitating learning goals. Student learning assessed using their Describe-Examine-Articulate Learning (DEAL) model informs a faculty member's assessment of his or her own work. For instructors who want to publish their work as scholarship of teaching, the DEAL model can generate compelling evidence of the effectiveness of a given applied learning experience beyond Likert-type evaluations that may measure student satisfaction as much as learning (Greenwald & Gillmore, 1997; Snare, 2000). The ability to generate such an argument is increasingly tied to funding support for activity in higher education. Particularly in tight financial times, this sort of assessment tool is critical in demonstrating the impact of applied learning and its value to external constituents.

Finally, Ash and Clayton's approach to applied learning lays out a research process by which faculty develop, in a sense, hypotheses about what strategies will positively impact student learning and test those hypotheses using student critical reflection products. This approach allows faculty to move beyond scholarly teaching toward the critical evaluation and testing of one's own strategies that can be submitted for peer review. Indeed, work that follows this line of analysis would be most welcome in future volumes of the *Journal of Applied Learning in Higher Education*.

"Examining the Development of the Victorian Certificate of Applied Learning and Its Implications for Schools and Teacher Education in Australia," by Damian Blake and David Gallagher, provides an outstanding example of what can be accomplished when applied learning is implemented system-wide. It also highlights the implications such an adoption can have on teacher training programs, which implies that there may be unanticipated impact in other disciplines that seek to integrate applied learning across the curriculum.

The Victorian Certificate of Applied Learning (VCAL) was motivated by a desire to increase graduation rates from secondary schools in the province. The baseline completion rate of senior high school prior to the development of an alternate educational path based in applied learning pedagogy was 80%, with the goal that the VCAL might raise that to 90%. Achieving that goal would add more than 60,000 individuals to the workforce, significantly boosting the regional economy. But why the VCAL, and not some other alternative route to completion, such as the GED program in the United States? Because the VCAL addresses the increased diversity that folds into an educational system trying to retain students who would otherwise leave school early. The VCAL provides a means for these students to earn legitimate academic credit for learning that occurs in non-traditional situations. The process involves creating a dialogue with students about the curriculum through which curricular content is negotiated and ultimately assessed.

The assessment component to the VCAL is critical to the integrity of such programs. It is part of the reason that the VCAL had significant implications for teacher training. For teachers who are trained in traditional assessment strategies, it can be difficult to imagine how a real-world experience could translate to assessment focused on test scores. The universities in the province educating future teachers had to prepare these individuals to handle a wider array of assessment strategies, as well as to deliver a wider array of pedagogical strategies. Given the difficulty in recruiting and retaining high-quality secondary school teachers in the United States, making the process broader and more rigorous is not a trivial problem. The key to doing so successfully may lie in the ability to demonstrate such a program's economic impact. The VCAL has moved Victoria significantly toward the goal of 90% completion rates. In addition to documenting completion rates, it will be important in future years to document the impact of that improved completion rate in terms of increased workforce and related productivity gains.

In fact, this type of accountability is not only relevant to the VCAL, but may be a useful strategy for others doing research on applied learning. Applied learning is inordinately inefficient compared to traditional lecture-based counterparts in the academy. In lean times, university administrators may question the value of continued support for such pedagogical strategies if the faculty who practice them have not carefully documented the benefits of such investments for the constituents of the university. Future research in a variety of areas of applied learning will benefit from scholars who establish an economic value to the expensive process of applied learning, as well as the impact on graduation rates and student learning.

"Will They Recognize My Lecture in the Field? The Juvenile Corrections Critical Assessment Tour Applied Learning Experience," by Greg Lindsteadt and Regina Williams-Decker, raises several important issues for applied learning. The authors note the stimulus for applied learning as pedagogical, but also as a step in rehabilitating the reputation of criminal justice as an academic field. This kind of reflection proves especially timely during economic belt-tightening, when academic programs must appeal to (largely non-academic) policymakers by demonstrating practical relevance. Lindsteadt and Williams-Decker examine the ways a deep field experience within juvenile justice facilities can show the applicability of course content to the actual practice of juvenile justice. Writ large, this essay poses the question of how well class- and text-based theory aligns with the practices within the criminal justice system.

The Juvenile Corrections Critical Assessment Tour (JCCAT) discussed in the article invites reflection that extends far beyond the dynamics of the specific applied learning experience, ambitious as it was.

Usually the practical relevance of course content is judged unidirectionally, by measuring correspondence of class experience with activities in the profession. Future research might invert the question these authors ask, querying whether practitioners will recognize future juvenile justice workers when they interact with the students. Applied learning experiences usually occur at the intersection of several realms of participants: students, academics, field workers, and clients in the field. It might prove rewarding to gather data not only on whether students recognize course content in the field, but also whether the personnel at juvenile justice facilities view the course content as an accurate depiction of the justice system.

As for learning outcomes, the JCCAT opens the door to multiple measures of learning. The article offers intriguing glimpses of possible systemic biases in the actual practice of juvenile justice, especially in the areas of racial, gender, and class equity. The course as well as the project itself might in future iterations dig deeper into the roots of these disparities—perhaps uncovering lingering, unresolved tensions between rehabilitative models of justice and punitive practices that may contribute to recidivism more than reformation. On a broader level, the JCCAT experience could confront the convergences and divergences between social justice and criminal justice (Rawls, 1971). Direct engagement with these systemic issues might equip students not simply to become future workers within the justice system, but rather to empower them as agents to rectify the discrepancies they observe between theories of justice and the ways justice is meted out to juveniles.

“Student Motivation and Assessment of Applied Skills in an Equine Studies Program,” by K. I. Tumlin, R. Linares, and M. W. Schilling describes the impact of using a rubric—and providing it to students prior to testing—to assess hands-on, psychomotor skills such as showmanship in an equine studies program. Theoretically, providing students with the rubric ahead of the assessment should clarify the grading standards and improve student performance on the applied tasks. In fact, the authors of this study report the counterintuitive finding that students who were given a rubric beforehand actually performed worse on the assessment of their applied skills than students who had not seen the rubric at all.

Rubrics are standard operating procedures in much of the educational domain, in part because they standardize assessment of skill and in part because they make the evaluation standards transparent to students. Indeed, McTighe and O'Connor (2005) argue that providing the rubric to students is a necessary (though not sufficient) condition for supporting student learning. The finding that in an applied learning setting the rubric resulted in poorer student learning outcomes is intriguing. Future research might focus on establishing whether or not this result is replicable in other disciplines that use applied learning, and if the result is

reliable, the reason behind it. The authors of this study report that the students in this program are largely more goal-oriented than process-oriented. Could it be that providing students who are already goal- (i.e., grade?) oriented pushes them to achieve the minimum rather than the maximum possible? This is exactly what happened for the students in this study—the average performance was lower overall and the failure rate was lower when the rubric was present but the “superior” performance category was much more likely to be achieved when the rubric was not provided.

This result invites the question of what impact a rubric has in an applied learning setting. In some ways, providing a rubric “frames” the situation for students *a priori*. Part of the point for those of us who encourage students to participate in applied learning activities such as *practica* in a discipline is to expose students to learning situations that are vague and undefined, requiring the student to frame the problems they encounter on-site for themselves. The ability to effectively frame a situation so that one can apply the appropriate academic content to generate solutions and productive work is critical to applied learning. Indeed, Eyler and Giles (1999) argue that “application” is one of the vital components of the learning process in service-learning settings. Does providing a rubric to students in an applied learning situation perhaps defeat part of the purpose of applied learning by effectively narrowing students’ attention to a limited set of features or possible solutions? The results reported by Tumlin, Linares, and Schilling invite future scholars to investigate these and other possibilities.

“Demographic Tipping Point: A Discussion of Cultural Brokering with English Language Learners as Service-Learning for Teacher Candidates and Educators” by Wendy McCarty, Rosemary Cervantes, and Geraldine Stirtz details the experience of a service-learning project that illustrates the mutual impact such experiences can have on students and community members. The project implements “cultural brokering,” defined as intercultural partnerships initiated to instigate positive social change. The brokering in this case involves teacher candidates helping native Spanish speakers learn basic English. The language learning moved in two directions, typifying the brokering relationship. The English language learners (ELLs) developed their linguistic skills to improve their social mobility, while the teacher candidates acquired more Spanish language skills through conversing with the learners and their families.

The cultural brokering experience offers intriguing possibilities regarding how service-learning might combine with intercultural activities to enhance linguistic and intercultural competence. Specifically, standardized pre-tests and post-tests of language skills could gauge the degree to which the teacher candidates and the ELLs learned

each other's language. As for intercultural sensitivity, prior research on service-learning has noted the potential for intercultural experiences to trigger boomerang effects if the unfamiliar culture is cast in particular kinds of social roles (Erickson & O'Connor, 2000). Placing certain populations, such as non-native English speakers, consistently in the role of needing assistance might actually reinforce ethnocentric views of Anglo-American hegemony. Inventories of intercultural tolerance or measures of prejudice could be administered to determine how cultural brokering affects the cross-cultural attitudes of participants.

As the authors note, participant feedback deserves supplementation with other kinds of empirical and interpretive analysis. One interesting direction for further research would be to employ different pedagogical techniques to teach the ELL students. The project could collect important data on the most effective ways to enable non-native English speakers to acquire English language skills. Do the same techniques for foreign language instruction of native English speakers work as well for students from other linguistic backgrounds? Which pedagogical techniques prove most effective with particular demographics of language learners? McCarty, Cervantes, and Stirtz open the door for future research to begin to mine a variety of data sources for answers to these questions.

INVITATION TO FURTHER INVESTIGATION

The finale of this article consists of suggestions for future research directions rather than a definitive conclusion that brings inquiry to a neat—and necessarily premature—conclusion. Scholarship on applied learning needs to move beyond self-advocacy. The justifications for applied learning have been made convincingly. These arguments require more nuanced examination to avoid categorical endorsement of applied learning regardless of its method or context of implementation. We suggest several modes of conducting scholarship on applied learning that go beyond self-justifications of particular applied learning experiences.

Many fruitful paths for scholarship on applied learning await exploration. Thus far, little attention has focused on the interface between applied learning and emergent educational technologies. Applied learning techniques have been discussed as low-tech ways to intensify intellectual experiences, especially when compared to hands-off, depersonalized methods that operate via economies of scale (Schwartzman, 2001). Minimal attention, however, has been devoted to the role technology might play within applied learning. For example, what implications do computerized simulations have for field experiences and practica? As budgetary belts tighten, might virtual experience supplement, enrich, or displace what counts as experience in experiential learning? Rather than demonize new technological tools, future research could tap into the

instructional technology literature to investigate how technological tools and applied learning could prove mutually beneficial. How could inexpensive means for touring sites and conducting long-distance interviews enhance preparation for study away? In what ways might collaborative and social networking tools from wikis to Twitter and beyond increase the sustainability of learning beyond the duration of a term spent studying abroad or at an internship site? Could virtual realities such as Second Life and similar realms intensify preparation for firsthand applied learning experiences? Overall, how might applied learning leverage the power of technology to (a) improve student readiness for applied learning, (b) enrich the applied learning experience, (c) extend the sustainability of applied learning beyond a project's termination at a given locale, (d) improve methods of assessing learning outcomes, (e) reduce or maintain costs without sacrificing quality?

In an important essay surveying the theoretical territory of the communication studies field, Craig (1999) identifies socio-cultural and critical approaches as two classifications of communication theory. These perspectives transcend communication studies and could generate research that would enrich the study of applied learning.

Socio-cultural scholarship on applied learning asks questions that explore the interaction between applied learning and its social environment. Internships offer an excellent example of opportunities for socio-cultural explorations. Internships tend to be discussed from two perspectives: the student's pedagogical/professional development and the sponsoring organization's labor needs. Less attention has been devoted to issues related to internships and organizational culture. One such issue involves the intern's place in organizational hierarchies. If an internship serves as a training ground for executive positions, a hope many student interns harbor, then how do rank and file employees view the intern who serves a brief internship and then leapfrogs over employees with greater seniority to a position that outranks them? How does the rapid rise of an intern through the organizational ranks comport with an organizational culture that touts advancement through "paying your dues," and "taking care of our own"? If interns are analogous to apprentices, then how does an apprenticeship through an educational institution's internship program compare to an apprenticeship of on-the-job training without an academic component?

Internships also provide an opportune venue for delving into the ambiguous role of students engaged in applied learning. The student intern assumes a dual role comparable to the graduate teaching assistant. Teaching assistants must navigate between several potentially conflicting roles, such as peer to the students they teach (all are students earning grades) grader, mediator between undergraduates and full-fledged

faculty. Student interns, whether paid or unpaid, face similar complexities in positioning their role within an organization.

Scholarship that explores applied learning as a critical force could investigate the maintenance and disruptions of power relationships that infuse experiential learning. Johnston (2007) notes the disconnect between the compliant subservience so often rewarded in cooperative education ventures, which could include internships, and the encouragement of questioning and challenging systems of embedded privilege that lie at the heart of critical pedagogy. How might scholarship on applied learning reconcile the conflicting social pressures to train obedient employees while also fostering critical thinkers who question the embedded systems of privilege that perpetuate subservience? A study by Carson and Fisher (2006) found that 25 percent of students did not demonstrate signs of critical thinking in their reflections on the internship experience. These students simply described their experiences without questioning what they encountered. The researchers note that students might become reluctant to engage in critical reflection when simple description poses fewer risks. "We recognize that attempting to produce criticality in an environment that often asks for the opposite (conformity and adherence to the status quo) can be a risky undertaking, one that many students may be reluctant to pursue" (Carson & Fisher, 2006, p. 716). To what extent can applied learning move toward more critical reflection without jeopardizing the continuity of campus-community or campus-corporation partnerships?

Another productive path for research would lead researchers toward reflecting more deeply on the relationship between applied learning and the cultivation of what Benjamin Barber (2004) calls "strong democracy." A more substantial body of empirical research could document which kinds of applied learning correlate with long-term behavioral changes that reflect deep involvement in civic affairs. Theoretical and interpretive research could explore how applied learning can build the capacity for systemic democratization, perhaps by creating a culture of mutual obligation and care as a counterpoint to consumerism and commodification (Schwartzman & Phelps, 2002). For example, studies could adopt networking theories or diffusion of innovations to determine the most effective ways to disseminate the cultural awareness students acquire from study abroad. Such investigations might provide insights regarding ways to counteract American hegemony and foster more civilized intercultural dialogues.

Future scholarship on applied learning can blaze many promising intellectual trails. We are pleased to play a role in this exploratory venture and invite all scholars and practitioners involved in applied learning to join the journey.

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Generating, Deepening, and Documenting Learning: The Power of Critical Reflection in Applied Learning

SARAH L. ASH

North Carolina State University

PATTI H. CLAYTON

PHC Ventures/Indiana University-Purdue University Indianapolis

Applied learning pedagogies—including service-learning, internships/practica, study abroad, and undergraduate research—have in common both the potential for significant student learning and the challenges of facilitating and assessing that learning, often in non-traditional ways that involve experiential strategies outside the classroom as well as individualized outcomes. Critical reflection oriented toward well-articulated learning outcomes is key to generating, deepening, and documenting student learning in applied learning. This article will consider the meaning of critical reflection and principles of good practice for designing it effectively and will present a research-grounded, flexible model for integrating critical reflection and assessment.

Applied learning pedagogies share a design fundamental: the nurturing of learning and growth through a reflective, experiential process that takes students out of traditional classroom settings. The approach is grounded in the conviction that learning is maximized when it is active, engaged, and collaborative. Each applied learning pedagogy provides students with opportunities to connect theory and practice, to learn in unfamiliar contexts, to interact with others unlike themselves, and to practice using knowledge and skills.

Despite the oft-cited maxim that “experience is the best teacher,” we know that experience alone can, in fact, be a problematic teacher

(Dewey, 1910; Conrad & Hedin, 1990; Hondagneu-Sotelo & Raskoff, 1994; Stanton, 1990; Strand, 1999). Experiential learning can all too easily allow students to reinforce stereotypes about difference, to develop simplistic solutions to complex problems, and to generalize inaccurately based on limited data. The service-learning student, for example, may think that all food assistance programs function exactly like the one at which he is working, causing him to make sweeping generalizations about the effectiveness of such programs despite widespread variations in size, structure, and sources of food and funding.

In addition, students may not derive the most important or significant learning from their experiences. The undergraduate researcher in the physiology lab may be frustrated by the tediousness of the research and not appreciate that scientific inquiry is intentionally a slow process of trial and error. She may not fully understand why the research questions she is investigating are important or how the data she is collecting fit into previous findings.

Students may leave applied learning experiences with little capacity to turn learning into improved action. The study abroad student may believe he has developed a greater sensitivity to cultures different from his own but six months later find himself jumping to conclusions about others based on their background or ethnicity. The intern who finds her collaborative project frustrating may end up repeating patterns of poor teamwork in her next group project.

Finally, students in applied learning pedagogies may have a vague sense of the impact their experiences have had on them but not be fully aware of the nature of their own learning, its sources, or its significance. They may only be able to describe outcomes vaguely, with phrases such as "I learned a lot from working with community members" or "I got so much out of living abroad." The service-learning student may fail to understand the different ways in which the classroom and the community present her with learning challenges. The study abroad student may be unable to identify specific changes in her attitudes toward others or

AUTHOR NOTE: Sarah L. Ash, Ph.D., Department of Food, Bioprocessing and Nutrition Sciences, North Carolina State University; Patti H. Clayton, Ph.D., PHC Ventures, Cary, North Carolina/Center for Service and Learning, Indiana University-Purdue University Indianapolis. The authors would like to express appreciation to the many student and faculty colleagues who have contributed over the past decade to the work overviewed in this article and to Kelly Henry, Audrey Jaeger, Jessica Jameson, George Hess, and Roy Schwartzman for their review of earlier versions of this manuscript. Correspondence concerning this article should be addressed to: Patti H. Clayton, 300 Swiss Lake Drive, Cary, NC 27513; e-mail: patti.clayton@curricularengagement.com

to articulate what led to the changes. Students may, in other words, miss the opportunity to learn about their own learning processes—to develop the meta-cognitive skills required for lifelong, self-directed learning that applied learning is so well suited to cultivate.

The students in these examples would all benefit from a process of strong reflection, to help them avoid what T.S. Eliot (1943) once described as having the experience but missing the meaning. Learning—and understanding learning processes—does not happen maximally through experience alone but rather as a result of thinking about—reflecting on—it. As noted by Stanton (1990), when reflection on experience is weak, students' "learning" may be "haphazard, accidental, and superficial" (p. 185). When it is well designed, reflection promotes significant learning, including problem-solving skills, higher order reasoning, integrative thinking, goal clarification, openness to new ideas, ability to adopt new perspectives, and systemic thinking (Eyler & Giles, 1999; Conrad & Hedin, 1987).

However, reflection and its central role in applied learning are often misunderstood or seen as unnecessary. The word itself frequently connotes stream-of-consciousness writing, keeping a diary, or producing a summary of activities. It can easily be associated with "touchy-feely" introspection, too subjective to evaluate in a meaningful way and lacking in the rigor required for substantive academic work. Dewey (1910), one of the early champions of experiential learning, provides a strong foundation for re-conceptualizing reflection, defining it as the "active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends" (p. 6). Schön (1983) emphasizes the link between reflection and action; he defines reflection as "a continual interweaving of thinking and doing" and suggests that what he calls the reflective practitioner is one who "reflects on the understandings which have been implicit in [one's] action, which [one] surfaces, criticizes, restructures, and embodies in further action" (p. 281). The reflection required if applied learning pedagogies are to be maximized as learning opportunities is best understood in these terms, as a process of meta-cognition that functions to improve the quality of thought and of action and the relationship between them.

When understood in this light and designed accordingly, reflection becomes "critical reflection." It *generates* learning (articulating questions, confronting bias, examining causality, contrasting theory with practice, pointing to systemic issues), *deepens* learning (challenging simplistic conclusions, inviting alternative perspectives, asking "why" iteratively), and *documents* learning (producing tangible expressions of new understandings for evaluation) (Ash & Clayton, 2009a and 2009b; Whitney & Clayton, in press). As we understand it, critical reflection

is an evidence-based examination of the sources of and gaps in knowledge and practice, with the intent to improve both. Designing reflection effectively so as to make applied learning educationally meaningful first requires that we make clear its meaning as an integrative, analytical, capacity-building process rather than as a superficial exercise in navel-gazing (Ash & Clayton, 2009b; Whitney & Clayton, in press; Zlotkowski & Clayton, 2005).

A critical reflection process that generates, deepens, and documents learning does not occur automatically—rather, it must be carefully and intentionally designed. Welch (1999) points out that it is not enough to tell students “it is now time to reflect” (p. 1). Eyler, Giles, and Schmiede (1996) note that reflection “need not be a difficult process, but it does need to be a purposeful and strategic process” (p. 16). Especially given how unfamiliar most students are with learning through reflection on experience (Clayton & Ash, 2004), they need a structure and guidance to help them derive meaningful learning when they are outside the traditional classroom setting, otherwise reflection tends to be little more than descriptive accounts of experiences or venting of personal feelings.

This article explores principles of good practice across three steps in the design of critical reflection in applied learning:

- 1) determining the desired outcomes: learning goals and associated objectives,
- 2) designing reflection so as to achieve those outcomes, and
- 3) integrating formative and summative assessment into the reflection process.

It then presents a model for critical reflection—the DEAL model—that has been explicitly designed to embody these principles and refined through several years of research.

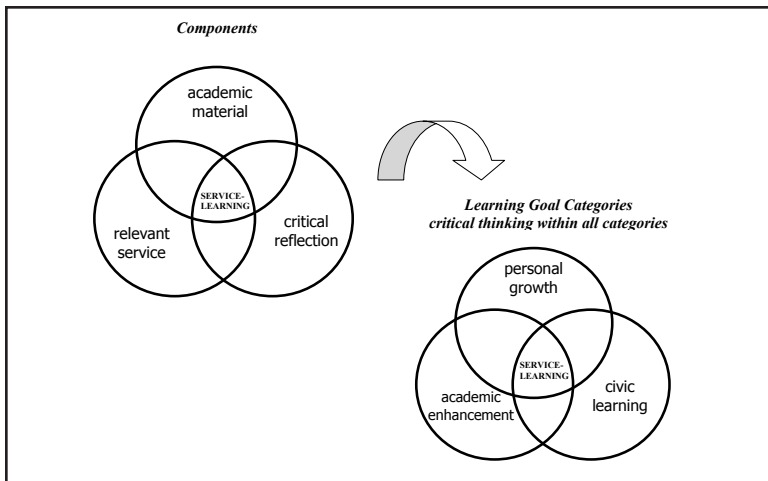
The discussion here is grounded in the conviction that facilitators of student learning in applied learning pedagogies are instructional *designers*; they make choices throughout the design process that are influenced by their goals and constraints and by their students’ abilities as well as their own. Designing reflection proceeds best when framed in scholarly terms: as a process of experimentation, of continual assessment and refinement, of learning with and alongside the students. In other words, the designer of applied learning opportunities is best understood as a reflective practitioner herself—one who engages in the same critical reflection that she expects from her students—thereby improving her thinking and action relative to the work of generating, deepening, and documenting student learning in applied learning.

DETERMINING DESIRED LEARNING OUTCOMES

Just as with any other intentional design process, designing critical reflection requires beginning with the end in mind (Covey, 1989; Wiggins & McTighe, 1998). Specifically, it begins with the identification of desired learning outcomes. It then proceeds with the expression of learning goals in terms of assessable learning objectives and continues to the design and implementation of teaching and learning strategies (such as reflection) aligned with those objectives, all the while developing assessment strategies that are well-matched to the objectives and to the teaching and learning strategies and that can be used to inform future revisions of either or both.

Instructors, as well as the programs that support them, have a range of desired learning outcomes that underlie their use of any particular applied learning pedagogy (or combination of them). Figure 1 provides a conceptual framework for articulating a categorization of these outcomes and the role of critical reflection in advancing them, using service-learning as an example. Most instructors use service-learning to help their students engage more effectively with the content of the course or the perspective of the discipline while also learning about citizenship and about themselves as individuals. In other words, they use service-learning to help students learn at least in the general categories of *academic enhancement*, *civic learning*, and *personal growth*. These categories can apply to other applied learning pedagogies as well, along with additional ones such as *intercultural learning* (particularly relevant

Figure 1: Conceptual Framework for the Role of Reflection in Achieving Categories of Learning Goals (service-learning example)



in study abroad), *professional development* (especially for internships), and *research skill development* (in undergraduate research). *Critical thinking* might be seen as its own category of outcomes or as a dimension of other categories; additional meta-level outcomes related to learning processes might include *emotional intelligence* or the ability to make *connections* between ideas.

Given the public purposes of higher education (Boyer, 1996; Saltmarsh, Hartley, & Clayton, 2009; O'Meara & Rice, 2005; Saltmarsh, 2005), designers of any applied learning pedagogy might well consider *civic learning* as a relevant category of learning. Battistoni (2002) offers thirteen conceptual frameworks for understanding "civic" that are linked to various disciplines and thereby suggests a wide variety of ways it can be defined, such as in terms of participatory democracy, social justice, or an ethic of care. Specific learning goals in this category might relate to such issues as change agency, power, privilege, leadership, economic and political systems, governmental processes, community organizing, and public problem-solving. In light of the multi-faceted nature of this category, applied learning opportunities of all types can be designed to include it. For example, students involved in undergraduate research can consider the social drivers for and implications of both their research questions and their process of inquiry; those studying abroad can focus attention on the interconnections between local and global issues and on the ways culture shapes notions of citizenship; interns can explore the roles of corporations as citizens and the range of opportunities to integrate their professional and civic lives.

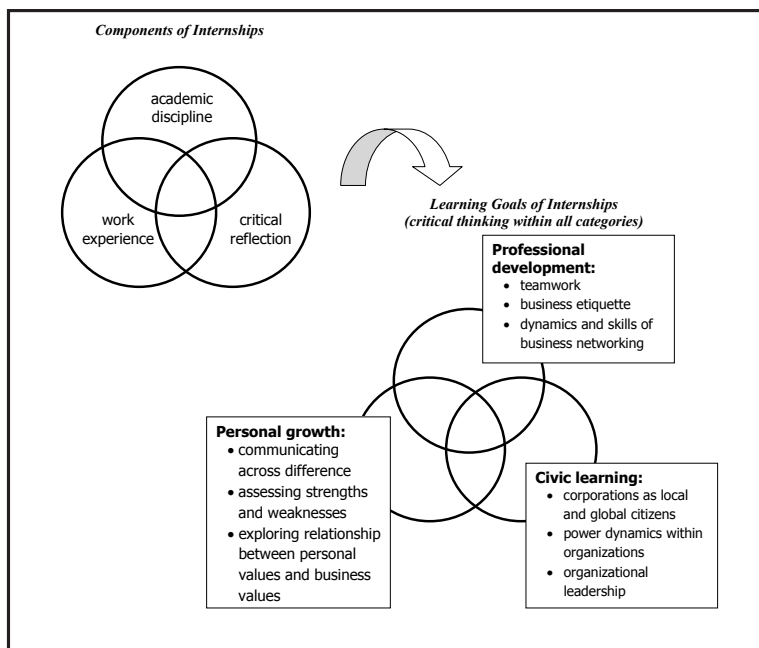
Similarly, applied learning pedagogies often involve interactions with others—classmates, mentors, community members, lab partners, officemates—and therefore lend themselves readily to learning in the general category of *collaboration*. Associated learning goals might include developing students' abilities to communicate with diverse others, make decisions as a group, assess group members' strengths and weaknesses and allocate responsibility accordingly, handle interpersonal conflict effectively, hold themselves and others accountable to group norms, develop shared visions, and monitor progress toward collective objectives and reach consensus on appropriate changes in their approach.

As the previous example suggests, learning goals within any one category of learning can often cross into another category—collaboration could also be understood as an element of diversity learning, professional development, personal growth, or civic learning. It is therefore up to instructors, program administrators, and/or students to decide how best to express the categories of learning and the associated learning goals for their particular situation. Because these categories are likely going to become headings in, for example, assessment reports, particular attention should be paid to what best represents the key arenas of learning that are

to be cultivated through the pedagogy. Toward that end, it may be helpful to begin by listing more specific goals (such as the ones given above for collaboration) and then determining how best to organize them into more general categories. Such an activity may be particularly important when a group of instructors undertakes instructional design together as part of a program or curriculum, so as to make sure that everyone is in agreement with and working towards the same desired outcomes.

Figure 2 provides an example of the use of Venn diagrams to express the learning goals associated with various categories of learning that might be developed for internships. As the use of the Venn diagrams suggests, learning outcomes are often conceptualized as the intersection of two or more categories. A Nonprofit Studies curriculum at North Carolina State University that is designed with threaded service-learning, for example, articulates learning outcomes at the intersection of academic enhancement and civic learning in terms of learning goals including: aligning mission, methods, and resources; balancing individual interests and the common good; moving beyond charity to systemic change; capitalizing on opportunities associated with diversity; and earning the public trust (Jameson, Clayton, & Bringle, 2008).

Figure 2: Conceptual Framework for the Role of Reflection in Achieving Learning Goals (internship example)



Whether starting with the general categories and working down to more specific learning goals within them or starting with learning goals and then determining the most useful way to categorize them, developing this broad structure to express and organize desired learning outcomes is key to undertaking an intentional instructional design process, to communicating the rationales for applied learning to students and colleagues, and to structuring assessment strategies and sharing resultant data. This structure for thinking about learning outcomes provides an important foundation for developing strong approaches to critical reflection.

FROM LEARNING GOALS TO LEARNING OBJECTIVES

Once the general categories of learning and their associated learning goals have been determined, the instructional designer’s next task is to express the learning goals as assessable learning objectives. Goals such as “students will learn about project management” (internship), “students will understand the challenges facing schools in their attempts to implement state and federal education policies” (service-learning), “students will appreciate the similarities as well as the differences between their home and host cultures” (study abroad), or “students will understand the differences between quantitative and qualitative research methods” (undergraduate research) are difficult to translate into effective pedagogical practice.

Bloom’s Taxonomy of Educational Objectives (1956) provides a foundation for turning learning goals into assessable learning objectives, which then drive the rest of the design process. The taxonomy includes learning in three domains: cognitive, affective, and psychomotor; this discussion refers to the Taxonomy of Educational Objectives in the Cognitive Domain. Although modified and re-ordered by some scholars in recent years, Bloom et al. originally identified six levels, each with associated—and assessable— learning behaviors, as summarized in Table 1. A central and widely shared, although not universal, tenet of our reading of the taxonomy is its hierarchical nature—each level builds toward

Table 1: Bloom’s Taxonomy and Associated Learning Behaviors

Bloom’s Classification	Examples of Learning-Related Behaviors
Knowledge	Identify, define, order
Comprehension	Explain describe, restate
Application	Apply, solve, choose
Analysis	Analyze, compare, contrast
Synthesis	Synthesize, develop, propose
Evaluation	Evaluate, assess, judge, critique

the next, from simpler to more complex dimensions of reasoning. For example, applying an academic concept effectively requires having a good understanding of it, which itself involves having basic knowledge of the underlying facts or theories.

Table 2 provides an example, drawn from service-learning, of the use of Bloom's Taxonomy to move from general categories of learning to specific learning goals and then to assessable learning objectives.

Table 2: Using Bloom's Taxonomy to Move from General Categories of Learning to Specific Learning Goals to Assessable Learning Objectives (service-learning example)

	Category: Personal Growth	Category: Civic Learning	Category: Academic Enhancement
Learning Objective Level	Learning Goal: Students will consider ways to refine their skills	Learning Goal: Students will become more effective change agents	Learning Goal: Students will understand the Stages of Change model
LO 1: Identify	Identify a particular skill of yours that you need to develop further.	Identify the collective objectives at stake and the approach you or others took toward meeting them.	Identify the Stages of Change model.
LO 2: Explain	Explain the skill so that someone who does not know you can understand it.	Explain the objectives and the approach you and / or others took toward meeting them so that someone not involved can understand.	Explain the Stages of Change model so that someone not in the course can understand it.
LO 3: Apply	Apply your understanding of this skill in the context of your service-learning experience and (as applicable) in other areas of your life.	Apply your understanding of the approach in the context of the objectives at stake.	Apply your understanding of the Stages of Change model in the context of the experience.
LO 4: Analyze	Analyze the sources of this skill in your life.	Analyze the approach in light of alternatives.	Analyze the similarities and differences between the Stages of Change model as presented in the text and as it emerged in the community.
LO 5: Synthesize	Develop the steps necessary to improve upon this skill in the short term, in your service-learning activities and (as applicable) in other areas of your life.	Develop the steps necessary to make any needed improvements in your / their approaches (and/or in the objectives) in the short term.	Develop an enhanced understanding of the Stages of Change model in light of the experience.
LO 6: Evaluate	Evaluate your strategies for refining your skills over the long term.	Evaluate your / their approaches in terms of the prospects for long-term, sustainable, and/or systemic change.	Evaluate the completeness of your understanding of the Stages of Change model and of its use in the community.

Using Bloom's Taxonomy in this way, to achieve a high level of clarity regarding desired learning outcomes and to express them in assessable language, enables instructors to design reflection that targets learning objectives in developmentally-appropriate ways, building toward the highest level of learning deemed appropriate in any given instance. The learning objectives thus become both the road map that guides the design of reflection activities and the basis for determining whether the intended destination has been reached and adequately expressed in the products of reflection.

DESIGNING REFLECTION TO ACHIEVE DESIRED LEARNING

Effectively designing critical reflection involves making a series of choices that are informed by the desired learning outcomes as well as by the opportunities and constraints that come with the specific context in which applied learning is being implemented and by the abilities of the participants. These choices produce an overall reflection *strategy* or over-arching structure that may combine various reflection activities or *mechanisms*—such as journal entries, online chat sessions, poster presentations, worksheets, or discussion sessions. Questions such as those in Table 3 can help guide the design of reflection strategies and mechanisms.

The result of such intentional design work is a customized plan that integrates critical reflection into the core of applied learning experiences. This plan may be maximized by designing the reflection strategy such that individual reflection mechanisms build on one another cumulatively, so that students learn how to learn through reflection as well as improve the quality of their learning and their practice over time. Table 4 summarizes a body of principles of good practice that has emerged to support the instructional designer in making the choices that produce high quality reflection strategies and mechanisms.

Table 3: Questions to Guide the Design of Reflection Strategies and Mechanisms

Reflection Strategies
<i>When and how often will reflection occur?</i> Before, during, and after the experience? Will students reflect iteratively such that reflection builds on itself over time?
<i>Where will reflection occur?</i> In or outside the classroom?
<i>Who will facilitate and/or participate in reflection?</i> Instructors, members of the community or workplace, peers?
<i>How will feedback be provided and/or reflection products graded?</i> What is the relationship between amount of feedback and level of expected outcomes? What is the relationship between the reflection products and the overall grade?
Reflection Mechanisms
Toward what <i>specific learning goals and objectives</i> will the particular activity be guided?
What <i>medium</i> will be used for the activity: written assignments, worksheets, spectrum activities, photographs, videos, games, drawings, online forums, in-class discussion, out-of-class reflection sessions, concept maps, etc.?
What <i>prompts</i> will be used to guide the activity?
What <i>products</i> will demonstrate the learning the activity generates: essays, PowerPoint or poster presentations, oral exams, etc.? Note that in a critical reflection process, the products used to demonstrate learning are in many cases the same as the medium used to generate it
What <i>criteria</i> will be used to assess the learning so demonstrated ?

Table 4: Characteristics of High Quality Reflection

	High Quality Reflection ...
Eyler et al. (1996)	is continuous (ongoing)
	is connected (with assignments and activities related to and building on one another and including explicit integration with learning goals and academic material)
	is challenging (including in terms of the expectation that students take responsibility for their own learning)
	is contextualized (to the community setting and broader public issues and to the students' own particular roles)
Bringle & Hatcher (1999)	links experience to learning
	is guided
	occurs regularly
	involves feedback to the learner to enhance the learning
	helps clarify values
Zlotkowski & Clayton (2005)	is oriented toward specific learning objectives
	is integrative
	is assessed in terms of critical thinking
	includes goal setting
	generates change in the learner's life

Each of these sets of characteristics of high quality critical reflection includes explicit linkage to desired learning outcomes, and Bloom's Taxonomy provides a structure to facilitate the design of reflection accordingly. The example reflection activity provided in Figure 3 demonstrates the design of reflection prompts—for the learning goal of understanding strengths and weaknesses, in the category of personal growth—that guide students step-by-step to ever-higher levels of reasoning through prompts that are explicitly structured in accordance with the levels of the taxonomy.

A focus on critical thinking is a key characteristic of critical reflection. The reflection guided by the prompts in Figure 3 can progress to ever-higher levels of reasoning but do so poorly, in an illogical, unclear way that is uninformed by consideration of multiple perspectives and that fails to engage with the true complexity of the issues. Critical thinking, as outlined by Paul and Elder (2002), is based on universal intellectual standards that include accuracy, clarity, relevance, depth, breadth, logic, significance, and fairness. Many of the potential shortcomings of reflection described in the introduction—reinforcing stereotypes, generalizing inappropriately on the basis of limited data, missing the most significant learning in an experience—are indicative of and result from poorly developed critical thinking abilities. Providing guidance in this area is, therefore, a necessary corollary to the use of hierarchical learning objectives in the design of critical reflection (Ash, Clayton, & Atkinson, 2005). Table 5 provides an overview of the standards of

Figure 3: Sample Bloom-based Reflection Mechanism (undergraduate research example)

According to Parker Palmer (2000), "limitations and liabilities are the flip side of our gifts ... a particular weakness is the inevitable trade-off for a particular strength." There is nothing "wrong" with us that we need to "fix," he suggests. Rather, we are who we are; sometimes our personal characteristics serve us well (and we think of them as strengths), and sometimes they serve us ill (and we think of them as weaknesses) The attempt to "fix" our liabilities will inevitably alter their "flip side" gifts as well. (pp. 52-53).

Individually and in writing ...

Identify and explain a personal characteristic that you tend to think of as a weakness in your role as a researcher

Apply Palmer's distinction to this characteristic: What gift or strength could be the "flip side" of this "weakness"?

Discuss with a partner ...

Compare and contrast a research-related situation in which the "weakness" emerged and one in which its "flip side" strength emerged. Why do you think each emerged as it did and what were the consequences?

If Palmer is correct regarding the relationship between our gifts or strengths and our limitations or liabilities, what do you think are the implications for your approach to personal and professional development as a researcher?

Individually and in writing ...

Critique Palmer's distinction: Do you agree with him? Why or why not? What, if anything, would you change in his thinking?

critical thinking (with the addition of integration and writing quality), along with prompting questions that can be used by students themselves to improve the quality of their reasoning and by peers and/or instructors as feedback on reflection products.

Using these tools together—designing reflection mechanisms through the use of hierarchical learning objectives and improving the quality of thinking at each of the levels of reasoning through the use of critical thinking standards—will help to *generate* and *deepen* learning in an applied learning environment. The products of such intentionally designed reflection, in turn, *document* learning for purposes of grading or research as well as for student use in guiding future thinking and action.

INTEGRATING FORMATIVE AND SUMMATIVE ASSESSMENT INTO THE REFLECTION PROCESS

Designing an intentional approach to critical reflection in applied learning also involves the development of an assessment strategy. Just as reflection is much more effectively implemented not only at the end of an applied learning course or project but throughout, so too is assessment more valuable when it is designed from the beginning and is itself evaluated and modified as needed throughout.

Table 5: Critical Thinking Standards

Critical Thinking Standard	Description	Associated Questions to Check your Thinking
Integration	Service experience clearly related to the learning.	<ul style="list-style-type: none"> Have I clearly shown the connection between my experience and my learning?
Clarity	Expands on ideas, express ideas in another way, provides examples or illustrations where appropriate.	<ul style="list-style-type: none"> Did I give an example? Is it clear what I mean by this? Could I elaborate further?
Accuracy	All statements are factually correct and/or supported with evidence.	<ul style="list-style-type: none"> How do I know this? Is this true? How could I check on this or verify it?
Precision	Statements contain specific information.	<ul style="list-style-type: none"> Can I be more specific? Have I provided sufficient detail?
Relevance	All statements are relevant to the question at hand; all statements connect to the central point.	<ul style="list-style-type: none"> How does this relate to the issue being discussed? How does this help us/me deal with the issue being discussed?
Depth	Explains the reasons behind conclusions and anticipates and answers the questions that the reasoning raises and/or acknowledges the complexity of the issue.	<ul style="list-style-type: none"> Why is this so? What are some of the complexities here? What would it take for this to happen? Would this be easy to do?
Breadth	Considers alternative points of view or how someone else might have interpreted the situation.	<ul style="list-style-type: none"> Would this look the same from the perspective of....? Is there another way to interpret what this means?
Logic	The line of reasoning makes sense and follows from the facts and/or what has been said.	<ul style="list-style-type: none"> Does what I said at the beginning fit with what I concluded at the end? Do my conclusions match the evidence that I have presented?
Significance	The conclusions or goals represent a (the) major issue raised by the reflection on experience.	<ul style="list-style-type: none"> Is this the most important issue to focus on? Is this most significant problem to consider?
Fairness	Other points of view are represented with integrity (without bias or distortion).	<ul style="list-style-type: none"> Have I represented this viewpoint in such a way that the person who holds it would agree with my characterization?

Modified source: Paul, R.P. & Elder, L. 2001. The Miniature Guide to Critical Thinking. The Foundation for Critical Thinking. Santa Rosa, CA. www.criticalthinking.org

Assessment can be designed for *summative* purposes and used at the end of a process to measure and document outcomes, and it can be designed for *formative* purposes and used during a process as a way to continuously improve both the process and the outcomes. A summative assessment process that is grounded in well-articulated learning objectives can be used both to grade student products and to report outcomes at program or curriculum levels. Summative assessment in the form of grading generally involves judging the degree to which students have met the learning objectives. Such assessment can be standards based and therefore measure the ultimate attainment of an objective at the end of the experience, or it can be based on improvement and therefore measure change over time. A related design choice that often emerges at the program or curriculum level is whether the ultimate attainment or the change over time is to be assessed within a single course or applied learning project, across a sequence of courses or projects, or both. Instructors and/or administrators need to decide on the form summative assessment reports should take, in light of the uses to which they will be put and the audiences for whom they are intended. For example, will the assessment be expressed quantitatively, such as the percentage of students whose reflection on experience demonstrates fulfillment of the desired outcomes, or will the report provide qualitative information with examples of student learning outcomes, or both?

Faculty and students using applied learning pedagogies will find value in formatively assessing both learning and the teaching and learning process and programs that generate it. Formative assessment is increasingly recognized as key to effectively designing teaching and learning. As noted by the National Research Council (2001), "Students will learn more if instruction [in this case, reflection in applied learning] and assessment are integrally related. [P]roviding students with information about particular qualities of their work and what they can do to improve it is crucial for maximizing learning" (p. 258). Feedback combined with opportunities to apply it (e.g. through revision of their work) is an approach to formative assessment that helps students learn not only content, but meta-cognitive skills as well—in this case, learning how to learn through the often unfamiliar process of critical reflection.

Formative assessment can also be used to check the reflection process against the learning outcomes it generates so as to refine both the learning goals and objectives and the reflection strategies and mechanisms designed to meet them. Instructors might review student products critically not only in order to provide helpful feedback to improve students' thinking but also to gauge the effectiveness of their own design (e.g., the clarity of the reflection prompts) and to provide themselves with feedback to improve it. Such formative assessment also provides valuable feedback to instructors regarding, for example, concepts or skills that

prove difficult for students to grasp; such information can inform discussion of how these concepts or skills are taught in the courses or programs associated with or prerequisite to the applied learning activity.

Having sorted through the various purposes of assessment, the designer of applied learning pedagogies faces additional choice points related to how assessment is implemented, including the nature of the products or evidence that will be examined. Will assessment involve extra activities that are not related to the learning process (for example, pre and post questionnaires) or assignments and products that are already part of the course or project (for example, reflection products or essays)? In a questionnaire, students might be asked to what degree they think they have met the learning objectives of their applied learning experience; in a course-embedded assignment, students would be asked to respond to a prompt or prompts, and the resultant product would be evaluated against the objectives. Practitioner-scholars such as Eyler (2000) suggest that the former often confuses student satisfaction with student learning and therefore call for the development of approaches that support students in doing the latter. In addition, a course-embedded process is generally less time-consuming, for both students and instructors, than the interview, focus group, or portfolio methods often used (Eyler & Giles, 1999; Gelmon, Holland, Driscoll, Spring, & Kerrigan, 2001) and requires more intentional integration of assessment with the teaching and learning process.

Another issue is the determination of criteria that will be used to evaluate the products that demonstrate learning. In other words, what will be the indicators of the degree to which the student has met the learning objectives or of the quality of learning outcomes? The creation of a rubric that expresses varying levels of quality or mastery, from novice to expert or from under-developed to excellent, can be extremely helpful in guiding this process. For example, if the objective is for interns to be able to determine the appropriate approach to a particular workplace situation (e.g., a team member not pulling her weight), a rubric in which responses are categorized by degree of sophistication and/or efficacy could be used for assessment. If an objective is meta-cognitive and/or is unique to the students as individuals and their particular experiences (for example, that students are able to evaluate a personal strength or weakness in light of their professional goals), then a rubric based on Bloom's Taxonomy that expresses levels of reasoning may be in order. The Standards of Critical Thinking described earlier can also be turned into a rubric (see Table 6, for example) that can be used to assess quality of reasoning.

An integrated approach to assessment and reflection includes using the same set of objectives and standards and tools to generate learning (through reflection prompts), to deepen learning (through formative assessment or feedback), and to document learning (through summative

Table 6: Critical Thinking Rubric [excerpts]

	completely lacking (1)	under-developed (2)	good (3)	excellent (4)
Accuracy	Consistently makes inaccurate statements and/or fails to provide supporting evidence for claims	Makes several inaccurate statements and/or supports few statements with evidence	Usually but not always makes statements that are accurate and well-supported with evidence	Consistently makes statements that are accurate and well-supported with evidence
Clarity	Consistently fails to provide examples, to illustrate points, to define terms, and/or to express ideas in other ways	Only occasionally provides examples, illustrates points, defines terms, and/or expresses ideas in other ways	Usually but not always provides examples, illustrates points, defines terms, and/or expresses ideas in other ways	Consistently provides examples, illustrates points, defines terms, and/or expresses ideas in other ways
Depth	Fails to address salient questions that arise from statements being made; consistently over-simplifies when making connections; fails to consider any of the complexities of the issue	Addresses few of the salient questions that arise from statements being made; often over-simplifies when making connections; considers little of the complexity of the issue	Addresses some but not all of the salient questions that arise from statements being made; rarely over-simplifies when making connections; considers some but not all of the full complexity of the issue	Thoroughly addresses salient questions that arise from statements being made; avoids over-simplifying when making connections; considers the full complexity of the issue
Breadth	Ignores or superficially considers alternative points of view and/or interpretations	Gives minimal consideration to alternative points of view and/or interpretations and makes very limited use of them in shaping the learning being articulated	Gives some consideration to alternative points of view and/or interpretations and makes some use of them in shaping the learning being articulated	Gives meaningful consideration to alternative points of view and/or interpretations and makes very good use of them in shaping the learning being articulated
Fairness	Consistently represents others' perspectives in a biased or distorted way	Occasionally represents others' perspectives in a biased or distorted way	Often but not always represents others' perspectives with integrity	Consistently represents others' perspectives with integrity (without bias or distortion)

[Modified source: Paul, R.P. & Elder, L. 2001. *The Miniature Guide to Critical Thinking*. The Foundation for Critical Thinking. Santa Rosa, CA. www.criticalthinking.org]

assessment or grading and reporting outcomes). Reflection prompts based on Bloom's Taxonomy can both guide students to desired levels of reasoning and determine the level of reasoning they have attained. Critical thinking standards can be used as both a formative guide to improve student reasoning and a summative tool to evaluate its quality in the end. Making visible such integration of reflection and assessment is key in helping students become increasingly aware of and responsible for their own learning processes.

The creation of an assessment strategy is as important as the articulation of the learning goals and associated objectives, and all should be developed in parallel during the design of the reflection activities. Trying to assess a learning goal that has not been articulated as an assessable objective (e.g., "students will understand ...," "students will appreciate ...," "students will learn about ...") is usually an exercise in frustration. A reflection mechanism that is not mapped to learning objectives is often a missed opportunity for maximized learning as well as a hindrance to using reflection products to assess learning. And an objective that expresses desired learning that cannot be achieved through the pedagogy in question, much less assessed, should, like all of the above, send the designer back to the drawing board.

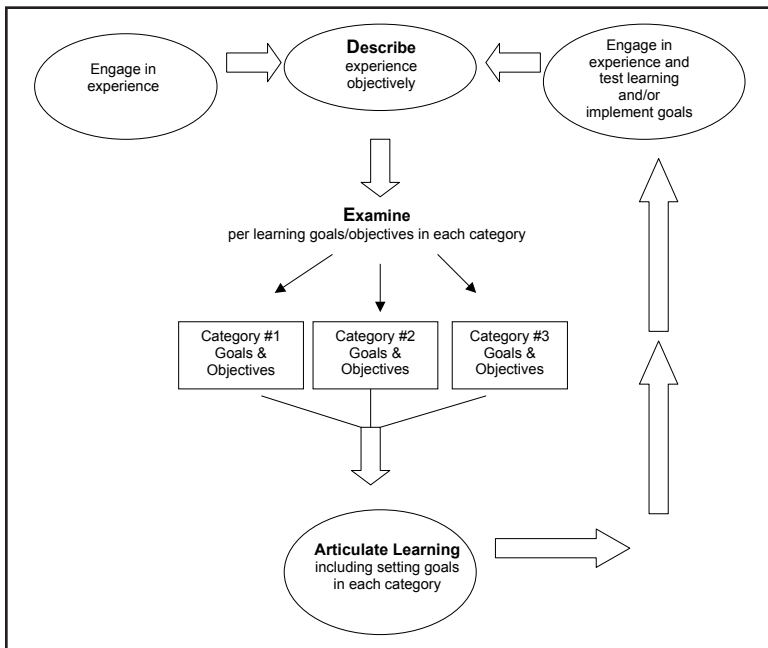
THE DEAL MODEL FOR CRITICAL REFLECTION

An example of an approach to critical reflection explicitly designed in accordance with the principles of good practice discussed above is the DEAL Model for Critical Reflection (Ash & Clayton, 2004; Ash & Clayton, 2009a, 2009b)—the product of a multi-year scholarship of teaching and learning project involving students and faculty from a variety of disciplines. Originally developed in the context of service-learning, DEAL has been used across a range of traditional and experiential pedagogies; in K-12, undergraduate, and graduate courses and curricula; and in co-curricular as well as professional training settings.

The DEAL model consists of three sequential steps (see Figure 4):

1. *Description* of experiences in an objective and detailed manner;
2. *Examination* of those experiences in light of specific learning goals or objectives; and
3. *Articulation of Learning*, including goals for future action that can then be taken forward into the next experience for improved practice and further refinement of learning.

Figure 4: Schematic Overview of the DEAL Model for Critical Reflection



Each step of this model requires specific prompts, which provide the guidance necessary for students to engage in the oftentimes counter-normative activity of developing their own learning rather than reproducing what their instructors have taught them (Clayton & Ash, 2004; Howard, 1998). The discussion that follows summarizes each step in the DEAL model and provides sample prompts.

DESCRIBE

Objective, detailed description of an experience provides a strong foundation for meaning-making in the critical reflection process; it is a way to make the experience present and to ensure that students have access to all relevant aspects of it as they engage in reflection. This step is not as simple as it might appear, as students often prefer to jump straight into interpretation. It is also easy to overlook or under-value the details that are often most significant, so enhanced skills of mindfulness and attentiveness are often required for—and developed by—this step. Reflection prompts associated with the Describe step ask students to address such issues as when and where the experience in question took place, who was and was not present, what they and others did and did not do, what they saw and heard, and so on.

EXAMINE

The DEAL model is explicitly designed to move students beyond summarizing their experiences, which all too often results when a reflection activity is assigned, into meaning-making. In the second step of DEAL, prompts that help students Examine their experiences are linked to the desired learning outcomes—whether expressed as learning goals or, in a more assessable fashion, as learning objectives—within each category of learning. Table 7 provides examples of prompts drawn from learning goals in the general category of *civic learning*; some instructors may prefer to develop Examine prompts from learning goals such as these rather than from assessable objectives when, for example, the intent is to stimulate questions or surface issues for further discussion rather than to evaluate students' reasoning.

ARTICULATE LEARNING

The third step of the DEAL model supports students in Articulating the Learning that the two previous steps have begun to generate, while providing further guidance in continuing to expand and deepen that learning. It helps them capture their learning in such a way as to be able to act on it and thereby improve the quality of their learn-

Table 7: DEAL Model Sample “Examine” Prompts Based on Learning Goals in the General Category of Civic Learning

Learning Goals	Sample Examine Prompts
Students will explore the dynamics of change agency	What was I / someone else trying to accomplish?
	In taking the actions I / they did, was the focus on symptoms of problems or causes of problems?
	Was the focus (symptom or cause) appropriate to the situation?
	How might I / they focus more on underlying causes in the future?
Students will learn about power and privilege	In what ways did differentials in power and privilege emerge in this experience?
	What are the sources of power and privilege in this situation?
	Who benefits and who is harmed?
Students will appreciate the tension between individual interests and the common good	What is in the interest of the common good in this situation? What is in the interest of (whose) individual interests or rights?
	In what ways is the individual good (mine / others) linked to and/or contrary to the common good?
	What trade-offs between them are involved? Who made the trade-offs?
	Were the trade-offs made appropriate or inappropriate and why?

ing and their future actions. It consists of four prompts: (a) *What did I learn?*; (b) *How did I learn it?*; (c) *Why does it matter?*; and (d) *What will I do in light of it?* The DEAL model thus does not begin but rather ends with the question “What did you learn,” in accordance with the understanding of reflection as the component of applied learning that generates learning.

The general structure provided by the DEAL model can be used to guide critical reflection online, in an oral discussion, in a written journal entry or essay, or in any combination of mechanisms. For example, Description might be done online by each student individually, Examination orally by a group of students, and Articulation of Learning as a written essay. The DEAL model can be used to structure “light” reflection, as in a 30 minute in-class activity or an online chat that produces simple (e.g., four sentence) Articulated Learnings.

A BLOOM-BASED USE OF DEAL

DEAL can also guide more in-depth critical reflection that targets higher order reasoning and critical thinking through prompts that are tied directly to hierarchical learning objectives. Such an approach might be used not merely to stimulate questions and surface issues for further discussion, as in the goal-based example in Table 7 above, but also to support students explicitly in developing reasoning abilities and to assess the quality of their reasoning.

In a particularly comprehensive version of the DEAL model (Ash & Clayton, 2009a, 2009b), designed to facilitate student reasoning all the way up to the level of evaluation in Bloom’s Taxonomy, the Examine

and the Articulate Learning steps each have two parts. After students Describe an experience, they surface one or more key ideas for further thought in Examine Part I and then take one of those ideas from identification and explanation through application and to analysis in Examine Part II. In Part I of the Articulate Learning step they synthesize a new understanding of the key idea and evaluate changes in their thinking, and in Part II they evaluate the written expression of that thinking and revise it as needed.

For example, in the category of *personal growth*, Examine Part I might include some or all of the prompts in Table 8, which are oriented toward the learning goals that comprise this category and which encourage students to focus on their own particular personal characteristics.

Then Part II of the Examine step might use prompts such as those in Table 9—specifically mapped to Bloom-based learning objectives up to the level of analysis—to support students in developing their thinking about that characteristic further.

The Articulate Learning step then supports students in re-thinking and extending the thinking from the Examine step, to create a more meaningful and fully thought out reflective essay, moving them through Synthesis and Evaluation with additional sub-prompts and supporting them in documenting all six levels of reasoning in Bloom's Taxonomy. Continuing with the example in the category of personal growth, Part I of this step includes the expanded prompts represented in Table 10.

Table 8: Bloom-based Version of DEAL: Sample "Examine" Part I Prompts (Personal Growth Category)

Examine Part I (Personal Growth): Sample Prompts to Surface a Personal Characteristic
What <i>assumptions</i> or <i>expectations</i> did I bring to the situation? How did they affect what I did or didn't think, feel, decide, or do? To what extent did they prove true? If they did not prove true, why was there a discrepancy?
How did this experience make me <i>feel</i> (positively and/or negatively)? How did I handle my emotional reactions? Should I have felt differently? Why or why not?
How did I <i>interpret</i> the thoughts, feelings, decisions, and/or behaviors of others? What evidence do I have that my interpretations were or were not accurate?
In what ways did I succeed or do well in this situation (e.g., interacting with others, accomplishing tasks, handling difficulties) and what <i>personal characteristics helped me to be successful</i> (e.g., skills, abilities, perspectives, attitudes, tendencies, knowledge)? In what ways did I experience difficulties (e.g., interacting with others, accomplishing tasks) and what <i>personal characteristics contributed to the difficulties</i> (e.g., skills, abilities, perspectives, attitudes, tendencies, knowledge)?
How did this situation challenge or reinforce my <i>values, beliefs, convictions</i> (e.g., my sense of right and wrong, my priorities, my judgments)? My sense of <i>personal identity</i> (e.g., how I think of myself in terms of gender, sexual orientation, socioeconomic status, age, education level, ethnicity, nationality, mental/physical health)?

In Part II of the Articulate Learning step, students are asked to evaluate their written products using a checklist, which includes the standards of critical thinking, and to rewrite their “I learned that” statement as needed to ensure that it expresses the highest level of learning they have achieved.

Table 9: Bloom-based Version of DEAL: Sample “Examine” Part II Prompts (Personal Growth Category)

Examine Part II (Personal Growth): Prompts to Develop Understanding of a Personal Characteristic Using Bloom’s Taxonomy	
Identify	What personal characteristic are you coming to understand better as a result of reflection on your applied learning experiences?
Explain	Explain the characteristic so that someone who does not know you would understand it.
Apply	How does / might this characteristic positively and/or negatively affect your interactions with others, your decisions, and/or your actions in your applied activities and (as applicable) in other areas of your life?
Analyze	What are the possible sources of / reasons for this characteristic? How does your understanding of these sources / reasons help you to better understand what will be involved in using, improving, or changing this characteristic in the future?

Regardless of how it is implemented—written or oral, individual or collaborative, lightly or in-depth—the DEAL model offers students the opportunity to use writing or speaking as vehicles *for* learning rather than as expressions of learning *after* it has already occurred (Clayton & Ash, 2004). Generating their own learning in this way is yet another counter-normative aspect of critical reflection on experience and, as suggested in the set of characteristics of high quality reflection in Table 4, students will benefit from feedback on their thinking, with associated opportunities to revisit and revise (e.g., through application of the Standards of Critical Thinking presented in Tables 5 and 6) to maximize the quality of their learning.

In addition, the development of a critical reflection model such as DEAL facilitates scholarly work relative to teaching and learning in an applied learning pedagogy, helping instructors improve the former to enhance the latter. For example, DEAL and its associated rubrics (including the critical thinking rubric in Table 6) were used to examine changes in students’ critical thinking and higher order reasoning abilities across drafts of a single reflection product and over the course of a semester, as well as across the categories of academic enhancement, civic learning, and personal growth in several service-learning enhanced classes (Ash et al., 2005). Building on this work, Jameson et al. (2008) modified the DEAL reflection prompts and rubrics for application across the course sequence of a Nonprofit Studies minor, investigating changes in students’ critical thinking and reasoning abilities across the learning goals

Table 10: Bloom-based Version of DEAL: “Articulate Learning” Part I Prompts (Personal Growth Category)

1. What did I learn?
<ul style="list-style-type: none"> • Identify and explain (so that someone who doesn't know you can understand it) a personal characteristic that you are beginning to understand better • Express the learning in general terms, not just in the context of the experience, so that it can be applied more broadly to other areas of your life (personally or professionally) and help you in your ongoing personal growth process • Introduce a judgment regarding whether the characteristic serves you well (and thus needs to be capitalized on) or poorly (and thus needs to be changed) – or both
2. How did I learn it?
<ul style="list-style-type: none"> • Clearly connect the learning to your specific applied learning activities so that someone who was not involved would understand, including discussion of the <u>positive</u> and <u>negative</u> impacts of the personal characteristic
3. Why does it matter?
<ul style="list-style-type: none"> • Consider how the learning has value over the short and long term, both in terms of your applied learning activities and in terms of your life more generally
4. What will I do in light of it?
<ul style="list-style-type: none"> • Set specific goals and assessable goals (that you could come back to and check on to see if they are being met) relative to this learning over the short and long term • Consider the benefits and challenges associated with fulfilling these goals, especially in light of the sources of or reasons for the characteristic

of five leadership challenges facing the nonprofit sector. McGuire et al. (2009) examined critical thinking demonstrated in Articulated Learnings produced by students in multiple disciplines using a variety of assignment and feedback-revision formats.

The DEAL model and its associated rubrics therefore demonstrate the intentional design of critical reflection: identifying desired student learning outcomes, articulating them as specific goals and as assessable learning objectives, and then crafting an integrated reflection and assessment approach around them. In addition to providing tools needed to generate, deepen, and document student learning, DEAL facilitates investigation of the learning processes (Clayton, Ash, & Jameson, 2009).

CONCLUSION

It is our hope that our work can serve as a model for faculty, staff, and students as they seek to design reflection associated with applied learning opportunities, courses, and programs. Our individual and collective learning as practitioner-scholars across the field of applied learning can be enhanced through a scholarly approach to the instructional design process. In turn, it can contribute to advancing the academy's understanding of both how our students think and how we can support them in learning to think more deeply and with greater capacity for self-directed learning.

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Examining the Development of the Victorian Certificate of Applied Learning and Its Implications for Schools and Teacher Education in Australia

DAMIAN BLAKE

Deakin University, Australia

DAVID GALLAGHER

Victorian Curriculum and Assessment Authority (VCAA), Australia

The Victorian Certificate of Applied Learning (VCAL) is a very successful senior secondary school qualification introduced in the Australian state of Victoria in 2002. Applied learning in the VCAL engages senior students in a combination of work-based learning, service-learning, and project-based learning and aims to provide them with the skills, knowledge, and attitudes to make informed choices regarding pathways to work and further education. The program has enjoyed rapid growth and its system-wide adoption by Victorian secondary schools, Technical and Further Education (TAFE) institutions, Registered Training Organizations (RTOs), and Adult and Community Education (ACE) providers has broadened significantly the range of senior schooling pathway options for young people. This paper will examine reasons for developing an applied learning senior secondary certificate and its rapid growth in Victoria since 2002. The authors draw on a number of case studies to profile the unique nature of applied learning in the VCAL, including its dimensions of service learning, work-based learning, and project-based learning. These case studies are also used to discuss a number of implications that have emerged from the use of applied learning in the VCAL, including approaches to teaching and assessment that will support applied learning and the development of new partnerships between VCAL providers and community partners. Finally, the paper considers significant implications the VCAL has created for teacher education in Victoria by discussing the new Graduate Diploma of Education (Applied Learning) developed by Deakin University.

Improving the education participation rates of young people has become a significant social and economic goal for successive Australian and international governments (OECD, 2001). Such a strategy is now widely understood to improve a nation's economic competitiveness as well as address issues of social inclusion and reduction of poverty (Access Economics, 2005; Billett & Seddon, 2004; Considine, 2006; Lamb & Rice, 2008). To achieve these increased participation rates there has emerged demand for new policies and practices in education and training emphasizing the need to increase the quality and relevance of learning to the lives of young people, particularly in their middle and post-compulsory years of schooling (UNESCO, 2008). Education institutions in many countries now place much more significance on the need for high quality alternative education opportunities (Aron, 2006), such as the "hands-on" or "applied" approaches to students' learning. Alongside these new directions in education there also emerge new questions for educators in secondary schools and higher education: (1) What do these high quality programs look like and what is the nature of their applied learning? and (2) What are the implications for teachers' professional practice and how can applied learning be used in higher education to prepare the new "applied learning teachers" required in secondary schools?

This paper explores these questions in two stages. In the first instance, the authors draw on current education participation trends in Australia to examine the development of the Victorian Certificate of Applied Learning (VCAL) currently being offered to senior high school students in Victoria, Australia. They then provide an outline of the VCAL in its current form and draw on two case studies to discuss the nature of the applied learning in the program. The second part of the paper discusses implications for higher education programs targeting the preparation of pre-service teachers in Victoria. The authors draw on the recent development of a Graduate Diploma of Education (Applied Learning) which seeks to utilize applied learning in higher education to prepare pre-service teachers for teaching in the VCAL.

AUTHOR NOTE: Damian Blake, Ph.D., senior lecturer in applied learning in the School of Education, Deakin University Waurin Ponds Campus, Geelong Victoria Australia; David Gallagher, Victorian Curriculum and Assessment Authority (VCAA), East Melbourne Victoria Australia. Correspondence concerning this article should be addressed to: Damian Blake, School of Education, Deakin University Waurin Ponds Campus, Geelong Victoria Australia 3217 (email: damian.blake@deakin.edu.au) or David Gallagher, Senior Manager for the Victorian Curriculum and Assessment Authority (VCAA), 41 St Andrews Place, East Melbourne Victoria Australia 3002 (email: gallagher.david.j@edumail.vic.gov.au)

LINKING EDUCATION TO THE ECONOMY

Since the early 1990s many governments around the world have linked education policy to economic reform. In Australia, for example, some have argued: "Education is increasingly becoming the 'engine room' of modern economies...A more educated worker is a more productive worker, and investment in education provides a pool of more skilled labor" (Access Economics, 2005, p. 8). Like other countries, much of the Australian education policy reform agenda has aimed to increase the proportion of young people who complete at least 12 years of schooling.

Each year approximately 80% of young Australians complete a level of education and training equivalent to 12 years of schooling (Australian Bureau of Statistics, 2007). Research conducted by the Organization for Economic Co-operation and Development (OECD) estimates this to be lower than other OECD countries, such as 88% in the United States and Canada, 91% in Germany, and 94% in Korea (OECD, 2008). Modeling based on Australian rates of participation in education suggests that boosting the proportion of young people completing school or an apprenticeship to 90% by 2010 would increase workforce numbers by 65,000, boost economic productivity, and expand the economy by more than nine billion Australian dollars (Access Economics, 2005; Applied Economics, 2002). It is therefore not surprising that like other states in Australia, the Victorian Government has set the goal that by 2010 it expects that 90% of all young people will have achieved Year 12 or its equivalent (Kirby, 2000; Kosky, 2002; Lamb & Rice, 2008).

A DISCOURSE OF RISK AND "EARLY SCHOOL LEAVERS"

A discourse of "risk" has now emerged alongside the remaining 20% of "early school leavers" and students who remain in school considered to be "at risk" of leaving. Contributing to this discourse of risk is the broader realization that completing 12 years of schooling significantly improves life transitions beyond school and reduces a young person's chances of falling into long-term unemployment (DSF, 2006; Lamb & Rice, 2008; Woods, 2007).

Students who do not complete Year 12 or its equivalent are more likely to become unemployed, stay unemployed for longer, have lower earnings, and over the course of their lives, accumulate less wealth, a problem that will only increase with time as employers seek a more highly skilled workforce. The connection is simple – retention, engagement and higher levels of education open up broader opportunities that lead to better personal, social and economic outcomes.

(Lamb & Rice, 2008, p. 2)

However, this discourse of risk is not limited to the personal risks faced by young people who are “early school leavers” and is also reflected in perceived risks to wider society. In the Australian state of New South Wales (NSW), for example, the Bureau of Crime Statistics and Research argues: “If long term unemployed males aged between 15-24, continued to the end of senior high school the reduction in break, enter and stealing over the course of a year would amount to almost 15 per cent” (Chapman, Weatherburn, Kapuscinski, Chilvers, & Roussel, 2002, p. 10).

Policy aimed at improving participation in the senior years of schooling therefore addresses the social risks associated with potential exclusion of young people from the important institutions of wider society, and the potential political risks created by perceptions of disenfranchised youth. The stakes are considered to be high for both “early school leavers” and their communities, creating a new moral imperative for schools to improve further young people’s participation in the senior years of schooling.

A DEMAND FOR NEW “ALTERNATIVES” AND THE VCAL

Increasing retention rates in Australian schools since the 1990s (Australian Bureau of Statistics, 2007) have already created new challenges for schools and teachers as they attempt to accommodate the greater diversity of senior students’ pathway interests and adjust to changing “learning temperaments” in their classrooms (Henry & Grundy, 2003). Schools and teachers are now being challenged to confront the many reasons young people give for leaving school early, including: a lack of perceived relevance of school; a desire to work and pursue vocational pathways; limited experiences of success in academic programs; a reduced tolerance for typical school rules; and problematic relationships with teachers (Blake, 2007).

Despite the rapid expansion of Vocational Education and Training (VET) options in Australian secondary schools encouraged by Australia’s Ministerial Council on Employment, Education, Training and Youth Affairs (MCEETYA, 2004), there remains a struggle to achieve the 90% target for participation. The continuing issue for schools and governments is that for many students in their senior years, a senior school certificate and pedagogical approaches to student learning that do not accommodate these students’ broader interests and learning temperaments may not meet their needs. These are also themes that have emerged in the *Going for Growth* report released by the Organization for Economic Co-operation and Development: “The high share of the low skilled in unemployment and inactivity, especially early school leavers, suggests that the upper-secondary education system’s emphasis on prep-

aration for university is too narrow, hampering innovative activities and productivity growth" (OECD, 2007, p. 2).

These issues were first identified in Victoria in 2000 by the *Ministerial Review of Post Compulsory Education and Training Pathways in Victoria* (Kirby, 2000). This review indicated that a broader range of programs was required to meet the needs of the many young people who choose to leave school early because they were discouraged by the limited curriculum choices offered by the existing Victorian Certificate of Education (VCE). The report also identified the need for new ways of thinking about senior school pedagogy and the social contexts of schooling in these years. The report states that:

Those who have difficulties with current arrangements will typically need different learning contexts. (p. 10)

Those young people who leave school before completing Year 11 have experienced difficulties more often and have not adjusted well either to the VCE or to school as a social setting. (p. 53)

In a context of increasing retention rates, many young people felt constrained by the current education system because their individual learning, personal development and transition needs could not be fully met by the traditional approaches to teaching and learning in the upper secondary years of schooling. As a result, many did not achieve their best results and others left school early, inadequately prepared for work and future learning.

A DEMAND FOR APPLIED LEARNING

The VCAL was therefore developed in Victoria as a state-wide senior school credential through which participating students receive recognition for their achievements in programs that have traditionally not provided credit within a senior secondary school qualification. Applied learning is central to the VCAL and students can achieve formal recognition of learning that occurs in a diverse range of non-traditional learning settings, including structured workplace learning placements, part-time work, locally developed programs, community projects, and participation in youth development programs. Evidence of the strong demand for such an applied learning certificate being made available to senior school students is found in the very rapid growth of the VCAL since its initial trial in 2002, as summarized in Table 1.

It is also worth noting that the VCAL is delivered by a range of different providers, including: government, Catholic and Independent secondary schools; Technical and Further Education (TAFE) Institutions;

and Adult and Community Education (ACE) organizations. In many cases a student’s VCAL may be the product of partnership arrangements between several of these organizations to allow students to achieve a combination of school-based studies and vocationally-based studies and

Table 1: Growth in VCAL since 2002 (Victorian Curriculum and Assessment Authority, 2009)

Year	Enrollment	Number of Providers
2002	546	22 Pilots
2003	5,127	239
2004	8,125	322
2005	10,692	380
2006	12,326	401
2007	14,093	418
2008	15,641	423

the eventual completion of all four curriculum strands of the VCAL. The overall curriculum design of the VCAL has been summarized in Figure 1.

The Victorian Curriculum and Assessment Authority supports teachers’ use of applied learning in the VCAL by encouraging the context-based integration of theory and practice through a “hands-on” and real-life approach to learning and teaching. Key principles supporting this “applied learning” approach include: (1) Start where the learners are; (2) Negotiate the curriculum. Engage in a dialogue with the learners about their curriculum; (3) Share the knowledge. Recognize the knowledge learners bring to their learning environment; (4) Connect with communities and real-life experiences; (5) Build resilience, self-confidence, self-worth – consider the whole person; (6) Integrate learning – the whole task and the whole person (in life we use a range of skills and knowledge. Learning should reflect the integration that occurs in real-life); (7) Promote diversity of learning styles and methods (everyone learns differently - accept that different learning styles require different learning/teaching methods, but value experiential, practical and “hands-on” ways of learning); and (8) Assess appropriately. Use the assessment method that best “fits” the learning content and context (Victorian Curriculum and Assessment Authority, 2006).

APPLIED LEARNING FOR RE-ENGAGEMENT

Longitudinal research investigating the post-school destinations of young Victorians notes that “some 87.8 percent of VCAL

Figure 1: VCAL Design

VCAL Program Design
<p>The Victorian Certificate of Applied Learning is <i>accredited at three levels</i>:</p> <ul style="list-style-type: none"> ▪ Victorian Certificate of Applied Learning – Foundation ▪ Victorian Certificate of Applied Learning – Intermediate ▪ Victorian Certificate of Applied Learning – Senior <p>VCAL learning programs are comprised of <i>four curriculum strands</i> and teachers are encouraged to work with students to organize applied learning initiatives that will integrate across these strands. The four strands are:</p> <ul style="list-style-type: none"> • Literacy and Numeracy Skills • Work Related Skills • Industry Specific Skills • Personal Development Skills. <p><i>Literacy and Numeracy Skills (LN) Strand: Purpose Statement</i></p> <p>The purpose of literacy curriculum selected for this strand is to enable the development of skills, knowledge and attitudes in literacy that allow progression in the main social contexts of family, employment, further learning and citizenship.</p> <p>The purpose of the numeracy curriculum is the ability to use mathematical skills in order to carry out purposes and functions within society related to designing, measuring, constructing, using graphical information, money, time and travel, and the underpinning skills and knowledge for further study in mathematics or related fields.</p> <p><i>Work Related Skills (WRS) Strand: Purpose Statement</i></p> <p>The purpose of the Work Related Skills strand is to develop employability skills and knowledge and attitudes valued within the community and work environments as a preparation for employment.</p> <p><i>Industry Specific Skills (ISS) Strand: Purpose Statement</i></p> <p>The purpose of the Industry Specific Skills strand is to enable the development of skills, knowledge and attitudes related to one or more vocational contexts in preparation for progression to further learning or employment.</p> <p><i>Personal Development Skills (PDS) Strand: Purpose Statement</i></p> <p>The purpose of the Personal Development Skills strand is to develop skills, knowledge and attitudes that lead toward:</p> <ul style="list-style-type: none"> • social responsibility • building community • civic responsibility, for example through volunteering and working for the benefit of others • improved self-confidence and self-esteem • valuing civic participation in a democratic society.

students agreed or strongly agreed that the opportunity to enroll in VCAL was an important factor in their staying at school” (Teese, Clarke, & Polesel, 2007, p. 7). Students expressed a deep appreciation for the experiential nature of the VCAL when asked to rate on a five-point scale what they liked most about the program (see Table 2).

Many of the students undertaking the VCAL have experienced some level of disengagement from schooling and may have been considered at risk of leaving school early. Applied learning in the VCAL has therefore become a very significant factor in re-engaging these young people in schooling through its emphasis on a hands-on approach to learning and

a conception of education that goes beyond the more traditional school classroom. The extent to which this is the case is also reflected in the steadily increasing percentages of eligible students who successfully completed a VCAL certificate since 2004 (see Table 3).

Finally, current national data indicate steady improvement in the Year 12 (or equivalent) completion rates, with an increase from 81.8% in 2000 to 88.7% in 2008 (in Victoria). These figures have been sourced from the Australian Bureau of Statistics (ABS, 2009) and summarized in Table 4. Australia's average completion rate for all states is 84.2% (see Table 5). Victoria is therefore making progress towards the 90% target, and the VCAL has become a significant strategy for achieving this goal, along with a range of recently announced reforms that now guarantee a training place for all 15 to 19 year olds and 20 to 24 year olds who are up-skilling.

Table 2: Students' rating of different aspects of the VCAL program

In relation to your VCAL program, which aspects of your study did you like the most? (N= 1907)	Agree		
	% Strongly agree	% Agree	% Total agree
Workplace experience	48.0	43.9	91.8
The opportunity to do Vocational Education and Training (VET) subjects	35.4	52.4	87.8
The hands-on approach to learning	56.8	39.4	96.2
The opportunity to complete your studies at your own pace	46.7	47.1	93.8

Table 3: Completion rates by gender for VCAL units and completion rates for students eligible to receive a VCAL certificate

Year	Satisfactory completion of VCAL units (males)	Satisfactory completion of VCAL units (females)	Total satisfactory completion of VCAL units (males and females)	Percentages of eligible students who completed a VCAL certificate at any level
2004	No data available	No data available	70.5%	58.7%
2005	73.7%	72.2%	73.1%	63.8%
2006	81.0%	79.7%	80.6%	68.7%
2007	79.2%	77.7%	78.7%	69.4%
2008	78.4%	78.5%	78.4%	70.0%

INTERNATIONAL GROWTH IN SCHOOL-BASED APPLIED LEARNING

The significant potential for applied learning to underpin a senior high school qualification has also been recognized in other countries, including the United Kingdom, where the new applied learning “Diploma” qualification was recently introduced in schools (Qualifications and Curriculum Development Agency, 2009). This qualification also targets 14 to 19 year old students and, like the VCAL, it represents a new vision in senior secondary schooling that adopts applied learning as the cornerstone of its pedagogical foundations.

Motivation and achievement are increased when tasks have purposes that are relevant to the individual and ‘real-world’ contexts, including the workplace, and when learners are actively involved, and supported, in shaping their learning experience... The collaborative nature of Diploma delivery is intended to secure a coherent experience for the learner that spans school, college, community and workplace environments. The emphasis is not only on the development of knowledge, but on the ability to apply that knowledge purposefully to various contexts related to real-world situations such as workplaces. By participating in a ‘community of practice’ associated with a particular sector or subject, learners gain experiences of different activities and groups, and develop the attitudes, as well as knowledge and skills, which are a precondition for progression. (Qualifications and Curriculum Authority, 2008, pp. 2-4)

Table 4: Percentage of persons aged 20-24 who have completed Year 12 or equivalent in Victoria, Australia

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Percentage of persons aged 20-24 who have completed Year 12 or equivalent	81.8%	82.1%	82.8%	84.9%	84.7%	83.9%	85.5%	86.1%	88.7%

Table 5: Percentage of persons aged 20-24 who have completed Year 12 or equivalent in 2008 for all states and territories of Australia

State/ Territory	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Northern Territory	Australian Capital Territory	Australia (average)
Percentage of persons aged 20-24 who have completed Year 12 or equivalent for 2008	83.4%	88.7%	84.3%	82.1%	80.0%	72.0%	64.9%	90.4%	84.2%

The growing international interest in applied learning programs for senior high school students also extends to China and other countries in the Middle East and Southeast Asia. In the United Arab Emirates (UAE), for example, an applied learning program based on the VCAL has been introduced for senior high school students as a strategy to improve students' engagement in learning and to address identified skill shortages anticipated in that region of the world. It is apparent that applied learning is increasingly valued in high schools for its intrinsic capacity to engage young people in authentic learning and meaningful social integration, while also contributing to a nation's economic growth.

CASE EXAMPLES OF APPLIED LEARNING IN THE VCAL

The following cases provide examples of specific VCAL programs that have been undertaken by students in Victorian secondary schools. The cases have been selected because they demonstrate the use of effective applied learning projects which have been used by students and teachers to complete the requirements of the different strands of the VCAL. They also demonstrate how far applied learning extends across a range of learning contexts in the community.

Applied learning in the VCAL shares many of the pedagogical traditions of experiential learning (Beard & Wilson, 2006; Dewey, 1938; Kolb, 1984; Luckner & Nadler, 1997) which have been blended with the principles of adult learning (Knowles, 1990; Mezirow, 1991) and adapted for secondary school contexts. The applied learning that is fundamental to the VCAL program often requires students to assemble their VCAL from a variety of "hands-on" learning experiences derived from a diverse range of educational settings and community contexts. To complete applied learning projects VCAL students often cross organizational boundaries that have remained historically difficult to bridge in the community. These boundaries include the traditional divisions between schools as youth-based learning institutions, adult and vocational education institutions, workplaces, and community organizations.

In the case of John, for example, one of his applied learning projects involved the development of a Fire-Wise trailer to educate the local community about the risks of wild fire. Bush fire is a very significant issue for many Australian communities threatened by fire every summer. This very meaningful aspect of his applied learning was reflected in his motivation to undertake the project. John's applied learning project required him to complete traditionally adult-based Certificate II and III courses related to fire fighting, as well as working closely with his teachers from his school, the local Country Fire Authority (CFA) and the wider community.

Figure 2: VCAL Case 1, John and Country Fire Authority

"John" is 16 years old and is studying to complete his VCAL in a small town in regional Victoria. In addition to his study he is a volunteer fire fighter in his local community with the Victorian Country Fire Authority (CFA). To complete his VCAL John is blending study at school with the applied learning included in his accredited wild-fire training offered by the CFA, and his work in the local community advising residents how to protect their home from a fire.

His involvement in protecting the local community from bush fires not only makes a valuable contribution to the community but also allows him to complete his VCAL by drawing on meaningful applied learning activities linked to Australia's National Training Packages. Examples of applied learning activities that John undertakes to assemble his VCAL from the different strands include: Certificate II in Fire-fighter Operations; Certificate II/III in Public Safety (Fire-fighting Operations); Certificates for Occupational Health and Safety; Level II First Aid Training; organizing media coverage and public presentations to the community; initiating, planning and implementing fundraising activities for a "Fire-Wise" trailer to be used to educate the local community about managing the risks of bush fire.

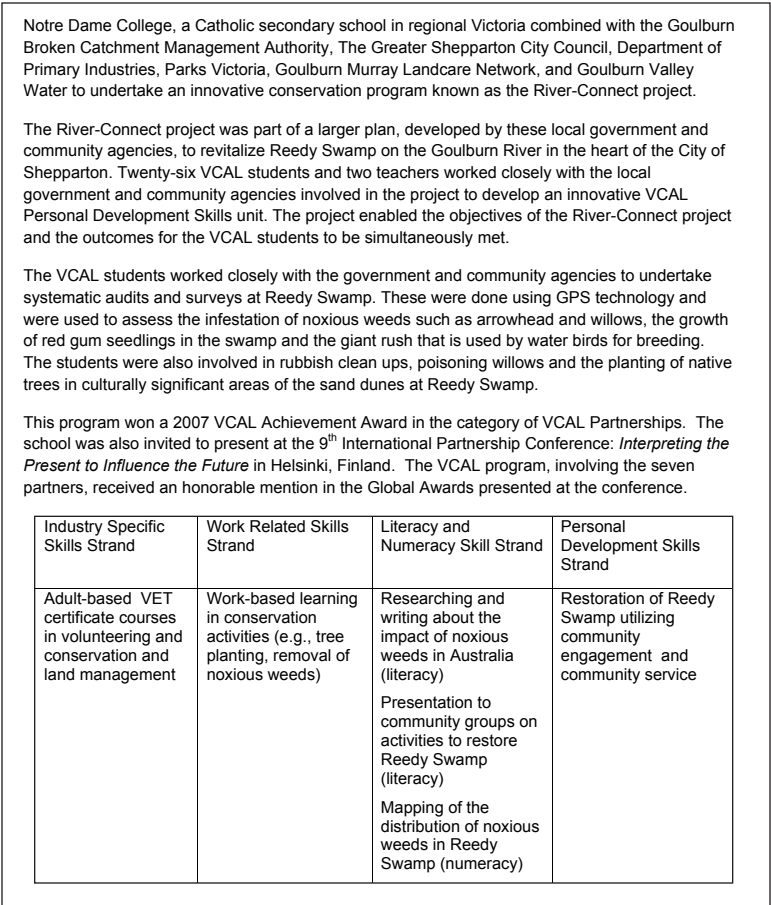
The combination of these applied learning activities allows John to complete key elements of his VCAL strands. Much of his learning undertaken for the normally adult-based Certificate II and III courses allow John to meet the Industry Specific Skills and Work Related Skills strands, while his community service role contributing to the education of the local community about bush fire contributes to his Personal Development Skills and Literacy and Numeracy Skills strands.

Industry Specific Skills Strand	Work Related Skills Strand	Literacy and Numeracy Skills Strand	Personal Development Skills Strand
Adult-based certificate courses in fire-fighting	Work-based learning in fire-fighting with the CFA	Authentic publications developed for media and local community presentations	Plan and conduct fund-raising activities for the development of 'Fire-Wise' Trailer to be used to educate the local community about bush fire.

John's applied learning project therefore required him to work across the traditional boundaries between secondary schools, adult learning environments, community service organizations (CFA) and workplaces. John's experience of applied learning involved his personalized integration of service-learning, work-based learning, and more traditional school-based learning as well. The flexible framework for the VCAL allowed John to actively construct and demonstrate his knowledge and skills related to each of the different strands by using his applied learning project. The transferable nature of his acquired knowledge and skills was also demonstrated by John's ability to work competently in each of the different contexts that were used to assemble his applied learning project. The knowledge and skills that emerged from John's applied learning project were truly multidisciplinary and had a very clear connection to his real world.

The case of the River-Connect project also demonstrates the unique nature of applied learning in the VCAL. Like John, the 26 students from

Figure 3: VCAL Case 2, Notre Dame College and the River-Connect Project

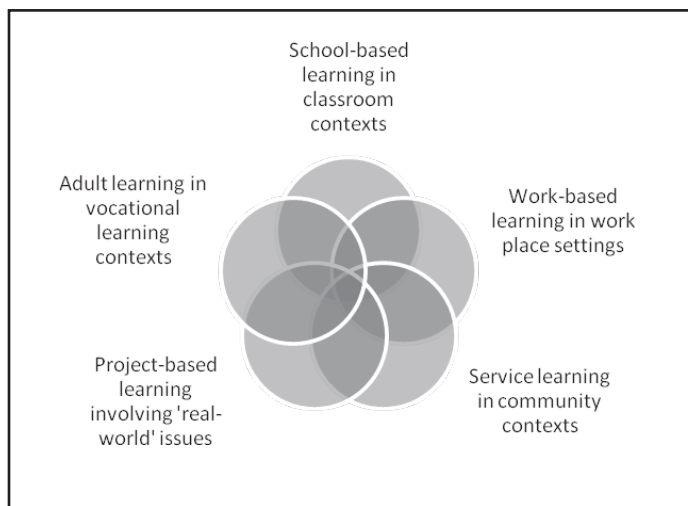


Notre Dame College who participated in the River-Connect project were required to assemble their applied learning by drawing on a meaningful project and a range of rich learning contexts that are rarely brought together for secondary school students. Applied learning for the River-Connect project involved students crossing the organizational boundaries between their school, local government, environmental agencies, and the wider community. In the process students blended their school learning with service-learning, adult learning and work-based learning. The students' service-learning contributed to meeting all of the learning outcomes for the Personal Development Skills (PDS) strand of the VCAL, which was ultimately assessed through the students' demonstra-

tion of them in an authentic context. The blending of the different types or modes of learning in the VCAL can be represented by Figure 4 below.

A key feature of the applied learning essential to the VCAL is the use of “real-world” projects that allow students to become actively involved in constructing new knowledge and skills which are given meaning and purpose by the context of their application. This process usually takes the students beyond the school gates and, as demonstrated in the two case studies, applied learning projects in the VCAL require students to cross institutional boundaries and to personally assemble their learning from a range of different learning contexts. This feature of applied learning in the VCAL means that students are also likely to be confronted by the differing assumptions about learning that are held in each of these settings. In workplaces, for example, the students are likely to experience value being placed on practical forms of knowledge and skills that have very specific contexts of application. Fire-fighting and improving the environmental management of the local swamp are examples of such contexts from the case studies above.

Figure 4: Blended Nature of Applied Learning in the VCAL



Such knowledge and skills are best acquired and demonstrated in the context of their application and less likely to be measured in an abstract setting. The students' process of learning such knowledge and skills involves working with people whose core business is not education but who still have a significant investment in learning. Such people include the teams of fire fighters who worked with John, and whose community of minds and bodies represent the “library” of knowledge and skill to be learned by him. In this setting VCAL students are likely to discern

that the “best” forms of learning are highly situated and that “valuable” knowledge often resides in teams or communities of people. Assessment of the knowledge and skill acquired by the students is therefore associated with the students’ contribution to the community and evidence of its impact on the community.

Students are likely to experience different messages about what types of knowledge and skills are “most valuable” in secondary school settings (Blake, 2007). In this highly controlled educational context greater emphasis is placed on knowledge and skills that are generalizable, can be abstracted from the contexts of application, and then taught and measured in a classroom situation. Such knowledge is also likely to be located in books or the minds of educational experts. The process of learning in a traditional secondary school setting and associated with the completion of a more conventional senior school certificate, may therefore typically be represented by the transmission of abstract information from the minds and books of teachers into the minds of students. In this situation students are likely to experience “valued” learning as being the acquisition and storage of generalizable forms of knowledge in their individual minds. Assessment is usually focused on the student’s capacity to reproduce the knowledge under exam conditions. There is clearly the potential for VCAL students to receive conflicting messages about learning and valuable forms of knowledge as they move between the different learning contexts for the VCAL.

IMPLICATIONS FOR EDUCATING TEACHERS IN HIGHER EDUCATION

The applied learning process in the VCAL requires of teachers new types of knowledge and skills that are responsive to the process by which their students cross boundaries to assemble their different modes of learning. Such pedagogical knowledge and skills exist in addition to teachers’ knowledge of their subject disciplines and share similarities with effective project management, including: (1) an ability to identify and link current community issues that are likely to be highly relevant to senior secondary school students and useful sources of meaningful applied learning projects; (2) an ability to develop and sustain creative partnerships between schools and other organizations in the wider community who also have an interest in learning (such organizations include adult learning institutions, workplaces, and community service organizations); (3) a broad conception of learning and deep appreciation of the different types of learning that students are likely to encounter as they become actively involved in their applied learning projects and cross institutional boundaries in the community; (4) an ability to assist students as they synchronize and assemble their own personalized experi-

ences of multi-disciplinary learning from each of the different settings involved in an applied learning project; (5) an ability to assess students' knowledge, skills and competencies related to applied learning and assist students' continual development in this regard; (6) a capacity to synchronize students' assessment in applied learning projects by accessing and evaluating information about the students' contributions to the learning contexts and communities beyond school; and (7) an ability to build effective relationships with senior school students that reflect the principles of adult learning and their status as young adults while maintaining the appropriate "duty of care" expected of a school teacher.

Ultimately VCAL teachers are required to overcome many of the dichotomous divisions that have tended to dominate education institutions, resulting in the transmissive approaches that are often associated with senior schooling and the many reasons students give for wanting to leave school early. Applied learning projects in the VCAL require teachers to value learning that encourages greater links between: "learning with hands and learning with the mind"; learning as individuals and learning as teams and communities; propositional knowledge that can be learned from books and tacit knowledge that is acquired through situated "hands-on" experiences.

THE GRADUATE DIPLOMA OF EDUCATION (APPLIED LEARNING)

In 2005 Deakin University established the Graduate Diploma of Education (Applied Learning) in response to the rapidly increasing demand for pedagogical knowledge and skills required to support the expansion of applied learning in secondary schools. The most immediate challenge for the course developers was the use of applied learning in higher education to prepare teachers for applied learning in secondary schools. The immediate risk for course developers was that fiscal constraints in higher education would typically pressure delivery of a course on applied learning into the seemingly cost effective use of weekly lectures and tutorials. This mode of delivery would have been epistemologically inconsistent with the applied learning content of the course, which cannot all be reduced to a series of lectures. The course developers were, in fact, facing many of the same pedagogical challenges being faced by VCAL teachers.

The course team developed a very strong relationship with the Geelong region's Local Learning and Employment Network (LLEN), an organization funded by the Victorian State government to build effective local community partnerships designed to better understand and improve pathways and transitions for young people in the region. There is a diverse range of community partners included as members of the

Table 6: Learning and Employment Organizations

Learning and Employment Organizations	Potential contribution for applied learning in teacher education
Secondary Schools (Government, Catholic, and Independent) Technical and Further Education Institutions (TAFE) Adult and Community Education (ACE) organizations	Contexts for the Graduate Diploma of Education (Applied Learning) teacher-education students to complete their own work-based learning and service-learning to better understand the current contexts in which young people are learning. Source of different communities of professional practice to facilitate grounded development of students' understanding about young people and applied learning in different "formal" learning contexts.
Victorian Curriculum and Assessment Authority Department of Education, Employment and Early Childhood (DEECD)	Important source of knowledge and information about current developments in applied learning in schools and other youth education settings.
Local government and community organizations	Provide important contexts for teacher education students to become involved in local community issues relevant to young people and to complete service-learning oriented towards youth engagement in learning.
Employers and industry reference groups	A context for teacher education students to better understand work-based learning in workplace settings, and consequently the significance of work-based learning for students in the VCAL.

regional LLEN (see Table 6), meaning that the course team had access to many organizations within the community that would allow the development of substantial components of work-based and service-learning in the course. Much of the course development occurred from consultation between the Deakin University team and members of the LLEN, resulting in a program that could be grounded in many of the important local issues affecting young people.

The team decided that a "mixed-mode" approach to the course would be the best strategy to balance the need for face-to-face lectures and workshops with the applied learning dimensions of the Graduate Diploma of Education (Applied Learning). Mixed-mode is also described as a form of "blended learning" (Hicks, Reid, & George, 2001) that utilizes face-to-face teaching with other modes of learning, typically including on-line learning technologies. The Graduate Diploma of Education (Applied Learning) was developed using four different modes of learning that would provide the higher education students with a combination of learning experiences and contexts that would also demonstrate congruence with applied learning in the VCAL. The four different modes of learning are: intensive face-to-face workshops delivered at the university and in school/industry-based contexts; on-line learning (off-campus); work-based learning undertaken in schools, TAFEs or ACE; and service-learning contributing value to community-based initiatives that are oriented towards improving youth engagement in education and training (see Table 7).

Each of the five intensive teaching blocks in the Graduate Diploma of Education (Applied Learning) runs for two weeks duration and occur as: Summer School; Autumn School; Winter School; Spring School; and a final one week block undertaken in November. The work-based learning mode in the program is completed as blocks of professional experience placements undertaken in schools, TAFEs, or ACE settings and during the periods between the intensives, providing a total of 45 days

Table 7: Summary of Mixed-Mode Learning in the Graduate Diploma of Education (Applied Learning)

Mode of Learning	Graduate Diploma of Education (Applied Learning)
Face-to-face	Five intensive <i>on-campus</i> teaching blocks conducted for two weeks at a time in February (Summer School), April (Autumn School), July (Winter School), September (Spring School) and November (Final block).
On-line	Students participate in <i>on-line</i> study using 'Blackboard' while they are " <i>off-campus</i> " in between study blocks and during their work-based learning placements
Work-based Learning	Students complete 45 days of <i>work-based learning</i> under the supervision of a suitably qualified mentor in secondary schools, TAFE institutions, and ACE settings.
Service-learning	Students undertake 15 days of negotiated <i>service-learning</i> requiring them to add value to their service-learning context. These days can be completed as small blocks of three and four days at a time or as a commitment to one more significant community initiative/project, depending on the nature of the activity.

professional experience for the year. The 15 days of service-learning can be completed by students at any time throughout the course, with many students electing to complete most of their service-learning by supporting initiatives and programs in the local community that benefit from their prior industry knowledge and skills. Finally, the on-line learning elements commence immediately after the first intensive is completed in February and continue to be undertaken by students in the periods between the intensive face-to-face study blocks. The on-line mode of delivery allows the students to continue to draw from and contribute to the course's community of learners during the periods off-campus.

The sequence of the eight curriculum units for the Graduate Diploma of Education (Applied Learning) is intended to cater to students' developing knowledge and skills as they progress through the course, as well as to synchronize their need to learn new content that will both support and utilize their work-based and service-learning projects. The students are encouraged to become actively involved in authentic school-based applied learning projects as key dimensions of their work-based learning and service-learning. Although each of the eight units has its own discrete study design and "learning folder" on the Deakin Studies On-line (DSO) Blackboard web-site, the course team deliberately attempts to integrate the content and assessment of units as much as possible, particularly during the face-to-face teaching sessions. The intended aim of this strategy is to emphasize the students' whole course experience

and to avoid the perception that any of the course units are overly discrete and unrelated to the others.

In 2008 a pilot study (Blake & Nolan, 2008) was conducted to investigate the higher education students' response to blending the four different modes of learning being used in the Graduate Diploma of Education (Applied Learning) and the Bachelor of Early Childhood Education offered at Deakin University. In particular, significant numbers of the 41 students who participated in the research either agreed or strongly agreed (78%) that using the mixed-mode learning allows greater balance between learning theory and practice. Additionally, a significant proportion of the students either agreed or strongly agreed (81%) that the knowledge and skills they learned through mixed-mode delivery was easily transferable between the different modes.

CONTINUING CHALLENGES FOR THE VCAL AND PREPARATION OF "NEW" TEACHERS

Many of the challenges facing the VCAL reflect challenges associated with its rapid growth and success over the last eight years. These challenges also affect the delivery of the Graduate Diploma of Education (Applied Learning) and include:

- The challenge to broaden many secondary teachers' conception of learning and how learning can be assessed. In particular, the need to correct the view held in some secondary schools that applied and vocational learning is a "second class" way of learning only offered to "at-risk" students as a form of "therapy." This view is inconsistent with the use of applied learning in higher education, where it is more likely to be valued as best practice (Wolff & Tinney, 2006) and a strategy to improve graduation rates. The "applied-learning-as-therapy" view held by some secondary school teachers fails to recognize how more transmissive approaches to teaching contribute to many young people's early departure from school (Blake, 2004, 2006).
- The challenge to meet the growing demand for applied learning teachers in response to the increasing demand for the VCAL to be delivered in the diverse range of youth learning locations, including secondary schools, TAFEs, and ACE organizations. Simultaneously, the demand for these teachers is reflected in the need for experienced teachers who can add value to the work-based learning and service-learning arrangements required by the pre-service teachers in the Graduate Diploma of Education (Applied Learning).

- The challenge to be creative in the synchronization of the different modes of applied learning essential to both the VCAL and the Graduate Diploma of Education (Applied Learning). This includes using highly effective applied learning projects that will encourage the contextualized development of transferable knowledge and skills.
- The challenge to equip teachers with the capacity to facilitate high-value applied learning partnerships between schools, universities, VET providers, employers, and members of the wider community.
- The challenge for the VCAL to be responsive to the rapidly contracting youth employment market created by the current economic climate, and the need to diversify post-school study options for VCAL graduates. This also includes recognizing the potential for the VCAL to be a pathway of choice for students affected by social disadvantage as well as students who simply prefer applied learning.

CONCLUSION

The Victorian Certificate of Applied Learning was created in Victoria, Australia as a response to increasing participation rates in senior secondary schooling throughout the 1990s and early 2000s. The program is offered as a “hands-on” alternative to the more traditional Victorian Certificate of Education and has enjoyed strong enrollment growth since its introduction in 2002. It is now understood to play an important role in the achievement of youth education policy targeting 90% completion of Year 12 or its equivalent. The VCAL has emerged in a policy context linking education to economic growth and a growing awareness of the personal, social, and economic risks created by young people leaving school early.

Applied learning in the VCAL utilizes community-oriented projects to achieve a unique blend of work-based learning, service-learning, school-based learning, and adult learning. Students are encouraged to use their “hands-on” projects to personally assemble their learning across a diverse range of authentic learning contexts. This represents a significant shift in thinking for secondary schools, where transmissive approaches to teaching have tended to dominate the senior secondary curriculum since the earlier years of lower Year 12 completion rates.

The VCAL has also created the need to re-think how applied learning can be used in higher education to better prepare pre-service teachers. This article has profiled the mixed-mode approach offered to students in Deakin University’s Graduate Diploma of Education (Applied Learning). This model also emphasizes the use of applied learning projects

and attempts to achieve best practice by blending the use of intensive face-to-face workshops with elements of work-based learning, service-learning, and on-line learning undertaken when students are off-campus.

GLOSSARY

Adult and Community Education (ACE): A community based organization that may be a registered training organization and/or an authorized VCE or VCAL provider.

Department of Education Employment and Early Childhood (DEECD): A Victorian Government department responsible for learning, development, health and well-being of all young Victorians from birth to adulthood.

Local Learning and Employment Networks (LLEN): Community networks established across Victoria to support young people's connections with local education and training organizations, employers, and community groups.

Middle years of schooling: Students who are in the fifth to ninth year of schooling.

National Training Packages: National training packages are the foundation of Australia's national training system. They are flexible training products designed and developed by Australian industry to support training pathways in current and emerging vocational skill needs. All training packages incorporate national units of competency, assessment guidelines, and national qualifications.

Post-compulsory years of schooling: Schooling that is completed after students have reached the minimum school leaving age. This age is typically 16 to 17 in Australian states.

Secondary schools: Schools that provide education from Year 7 to Year 12. Secondary schools are also frequently referred to as high schools or secondary colleges.

Senior school students: Students who are completing the last two years of their secondary schooling. These senior years are often referred to as Year 11 and Year 12.

Strands: The VCAL contains four curriculum strands: literacy and numeracy skills, industry specific skills, work related skills and personal development skills.

Structured workplace learning placement: Structured workplace learning is on-the-job training during which a student is expected to master a set of skills or competencies, related to a course accredited by the Victorian Registration and Qualifications Authority (VRQA).

Technical and Further Education: Publicly funded and adult-oriented training organizations which provide a range of technical and vocational education and training courses and other programs.

Victorian Certificate of Applied learning (VCAL): An accredited senior secondary school qualification undertaken by students in Years 11 and 12.

Victorian Certificate of Education (VCE): The VCE is a senior secondary qualification that is designed to be completed in Years 11 and 12.

Victorian Curriculum and Assessment Authority (VCAA): A statutory authority that provides high quality curriculum and assessment programs for Victorian students.

Vocational Education and Training (VET): Nationally recognized vocational certificate. This certificate may be integrated within a VCE or VCAL program.

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Will They Recognize My Lecture in the Field? The Juvenile Corrections Critical Assessment Tour Applied Learning Experience

GREG LINDSTEADT

Missouri Western State University

REGINA WILLIAMS-DECKER

University of Missouri—Kansas City

In the summer of 2008 a multi-disciplinary group of university students were provided an opportunity to tour on-site and observe facility staff in the course of their daily activities. Unlike the usual internship experience, the Juvenile Corrections Critical Assessment Tour allowed students access to nine juvenile facilities in four different states. Students were able to identify and evaluate personal preferences in system, facility, and mentor practices in a condensed four week period. Student-to-student and student-to-practitioner debriefings about specific observations in the facilities greatly enhanced the experience, creating a unique and effective workplace learning opportunity. By tightening the coupling between faculty in higher education and practitioners in the field, students were able to observe and explore lecture materials with the benefit of firsthand experience.

The US Juvenile Justice System is not a system. It is a decentralized group of agencies bound by a vague composition of beliefs, but sharing the trend of being unsatisfied with the way things are—thus initiating on-going reform. Despite demographic similarities, even states who share borders practice an extremely diverse menagerie of legal responses to acts of youth.

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So begins my initial lecture in Introduction to Juvenile Justice. Being a former practitioner, I have the benefit of supplementing such dry lectures with firsthand experience, but I do limit this practice for several reasons. First, my experience is restricted to only a handful of states in the US. Second, students entering the vast juvenile justice arena could only be provided one aspect of the field: my experience in youth secure care. But more importantly, my experience is simply that—filtered through my own processing, bias, and even selective recall. A lecture hall does not allow the events and circumstances leading to decision-making to be fully demonstrated for students. This prevents students from challenging or processing the given claims. In addition, the foundation of the individual student's knowledge or the wide array of student learning styles makes this task even more difficult for the instructor in a classroom. Providing students the opportunity to view firsthand the dilemmas they will face in their chosen field, while still maintaining a safe and effective learning environment, is indeed a daunting endeavor but extremely beneficial in creating the academic professional needed in such challenging fields as criminal justice.

LEARNING THROUGH APPLIED LEARNING

As an andragogical method, applied learning experiences in higher education are viewed as potentially effective means for students to interpret, process, and retain classroom instruction (Sims, 2006; Wolff & Tinney, 2006; Bailey, Hughes & Moore, 2004). Students who participate in these numerous types of learning activities tend to take less time to graduate and be more satisfied in the their vocation once they are employed (Wimshurst & Allard, 2007). If done well, these courses can provide students career exploration, increased skills and vocational social competence, as well as motivate students to complete the educational entrance requirements of their field (Hughes, Moore, & Bailey, 1999;

AUTHOR NOTE: Greg Lindsteadt, Ph.D., Criminal Justice and Legal Studies Department, Missouri Western State University; Regina Williams-Decker, Sociology and Anthropology Department, University of Missouri-Kansas City. The authors would like to thank the organizations that helped support this project financially: The Alumni Foundation and the Study Away Program at Missouri Western State University, State of Kansas KJA, State of Missouri-DYS, State of Nebraska - YRTCS, State of Iowa - DHS, and the businesses in the communities visited and especially the JCCAT student. Correspondence concerning this article should be addressed to: Greg Lindsteadt, Criminal Justice and Legal Studies Department, Missouri Western State University, 4525 Downs Dr., St. Joseph, MO 64507, e-mail: glindsteadt@missouriwestern.edu

Bailey et al., 2004). Students who participate in these experiences seem to have a better understanding of what will be expected of them in their field of choice, eliminating much of the initial shock their new workplace will create (Sgroi & Ryniker, 2002).

To prepare students to interact properly in the field, faculty must be aware of the details of the environment where the student will be placed (Hughes et al., 1999; Bailey et al., 2004). The communication lines between student and practitioner should be made as level as possible if students are to learn from the environment they are placed in. "If done well," these learning experiences can have the desired effect, but design must be a primary consideration of the developer (Hughes et al., 1999). Educators who make use of these types of learning experiences have heard much about the disjuncture between higher education and field experience. Traditional educational and workplace learning appear quite different at first glance. Education endorses and rewards individual problem solving, whereas this is rarely the case in a work environment, especially social services (Bailey et al., 2004). Primarily the necessity of building group or social relations to accomplish a given task is rarely rewarded in higher education. Higher education should focus its efforts on preparing people to be good adaptive social learners, so that they can perform effectively when situations are unpredictable and task demands change (Resnick, 1987). How to better couple both the workplace experience and what the students take from their education during these field experiences may be a better focus of research and course development.

A one-size-fits-all style of instruction does not suffice in the classroom and will limit the possibilities for student engagement in workplace-centered coursework. Learning styles differ for students as well as in disciplines. Using the Learning Style Inventory (LSI), Kolb and Kolb (1999) found students and even their vocational/educational area of choice to have identifiable tendencies. For instance, Kolb, Boyatzis and Mainemelis (2001) reported that students who favor the social service vocation were more apt to fall in a *diverging style* of learning, learning best in a group or brainstorming type forum. Those scoring high in *assimilating style* were found to favor hard sciences and preferred individualized reading assignments and lecture. Students with *converging styles* preferred simulations or experiments and were more likely to be in the fields of technology. Finally, *accommodating style* learners favored hands-on experience and relied more on instinct than logic. These students were found in management or business vocations. Developing educational experiences which can juxtapose different styles of learning can allow students to become active problem solvers, having built the ability to utilize different and sometimes uncomfortable methods to resolve tasks when in their field.

Allowing students in applied learning experiences to process alone what they view in the field is problematic. Educators tend to rely on the often misguided notion that all students will be able to recognize the use of theories or paradigms discussed in the classroom (Sgroi & Ryniker, 2002; Bailey et al., 2004). Kolb and Kolb (2005) refer to *a cycle of learning*, being a combination of “grasping and transforming experience” (p. 194). Simplified, this cycle provides concrete examples, enriched by reflection given meaning by thinking and transformed by action. In essence, the cycle of learning described is not a typology but a process. Learning begins with the student identifying current beliefs or perceptions made real by interactions with others. The synergistic transaction between the environment and the student beliefs or observation is put in motion when conversation occurs. In workplace learning this should occur reflectively, both in the field and in the classroom.

APPLIED LEARNING IN CRIMINAL JUSTICE EDUCATION

Universities have actively pursued the mission to develop and market applied learning experiences for students (Bailey et al., 2004). Criminal justice departments have a long history of using internships and practica to allow students to see firsthand the diverse field of criminal justice. This is often dubbed “a real world experience”—a somewhat concerning phrase—suggesting what higher education does in the classroom resembles nothing more than spouting unusable fiction to an audience. This is a very disturbing notion to one who remains passionate about the field of juvenile justice. Helping students process and develop as they experience their chosen field should be the essence of a true applied learning experience, as well as a lecture hall. Maintaining a vigilant watch over the relevancy of facts provided these future professionals is a responsibility entrusted to instructors by students and by the practice.

Criminal justice has received limited recognition in academics for the advancement of social science knowledge, theory, or methods with practice. The field struggles with legitimacy in the arena of higher education (Clear, 2001; Best, 2006; Finckenaue, 2005). An applied learning experience in the criminal justice field is not viewed as an academically sound experience equivalent to the caliber of residencies. This may be due to inaccurate perceptions by outsiders, but could also result as much from our own making in the discipline. We often fail to tightly couple education with the numerous workplace learning experiences our particular discipline has to offer.

Applied learning experiences in criminal justice programs are not typically represented by any one model. Common methods used to provide the out-of-classroom experience a hint of academia involve personal logs, journals, or summary papers (Stichman & Farkas, 2005; Bailey,

et al., 2004). Few of these classes attempt to prepare the student for their specific workplace learning experience. This may be due to the multitude of sites utilized by criminal justice academic departments, requiring unique preparation. The responsibility to prepare students to face what they will encounter in the field often falls by the way of "they will see it for themselves" (Stichman & Farkas, 2005, p. 148-149). In fact, the student's and the department's credibility with the agencies offering the applied learning experience hinges on how well the student is prepared to meet the needs of the agency.

FIELD'S EYE VIEW

Current practitioners seem to have a love-hate relationship regarding their involvement in higher education applied learning experiences (Shaefer, 1996; Biddinger-Gregg & Schrink, 1997). Those in the field who have experienced a *tag along or shadow* know the difficulties in balancing opportunities for a safe learning experience with simply having the intern do menial tasks that do not pose a risk. Few, if any, cases have been found where an agency has been found liable for injury to an intern student, but there exists in the back of any coordinator's mind the possibility that situations may arise resulting in civil ramifications (Stichman & Farkas, 2005; Biddinger-Gregg & Schrink, 1997).

The chance for potential employers to showcase what they have to offer the next generation of police officers, probation officers, and custody staff, to name a few, is often cited as a reason for allowing internships within an agency (Ross & Elechi, 2002). Agencies are also able to screen potential employees for a period of time at limited investment or risk responsibility, in the meantime providing a fresh audience to current employees (Bailey et al., 2004). Any experienced faculty member is easily able to recall a former student whose career jumping-off point was an internship experience, but details of how real and consistent these benefits are to the student or agency are limited. The vast majority of applied learning experiences that are allotted in the criminal justice field probably have more of a foundation in public relations and sense of duty, than recruitment of human resources.

JUVENILE CORRECTIONS CRITICAL ASSESSMENT TOUR (JCCAT)

In the summer of 2008, an applied learning experience was conducted with the assistance of juvenile facility managers in four different states. The *Juvenile Corrections Critical Assessment Tour* (JCCAT) course was designed to allow students the chance for guided discussion regarding one specific area of the juvenile justice system (juvenile corrections),

to tour facilities, and shadow veteran staff members on the job in nine different juvenile facilities in four states. A multidisciplinary group of students interested in working with delinquent youth were recruited for this course. Quite different than the usual course offering, JCCAT ended up being dubbed the 'Shawshank Tour' by numerous administrators and supporters at the university.

The initial perception that JCCAT would simply provide students tours of facilities was not completely unexpected. In many ways the goal of the course was similar to the goal of the numerous tours offered during any academic year in criminal justice: to allow students the opportunity to view the inside of a facility. Unlike the simple tour, however, this course also allowed students to comparatively evaluate key differences in state care of adjudicated (sentenced) youth. Missouri Western State University provides a unique geographic location (northwest Missouri) for students to evaluate judicial, administrative, and program differences in the care of youth in four different states. Usually this is left for the new professional to learn only after accepting a job, which can lead to disenchantment with the field for the graduate, who may not realize a different paradigm is simply across a state line, a few miles away.

The second goal of the JCCAT course was to allow these state facilities the opportunity to "showcase" their program efforts for youth and attract quality employees who are interested in working with youth within their particular area of expertise. Unlike a simple tour, the JCCAT allowed facilities to do this within academic disciplines or by staff functions. After discussion with facility managers it was deemed best that a wide range of educational disciplines should be recruited, despite the course being offered through the Criminal Justice and Legal Studies Department. An institutional environment requires many services and is essentially its own self-contained community needing numerous types of professionals to operate successfully. Facility managers played an active role in the development and orchestration of JCCAT. The facility managers and state administrators approached in these four states were unanimously in favor of being a part of this course. Their involvement did not simply end at providing access; these youth care professionals assisted in the development of the class, adjusting facility scheduling, while some even provided funding and meals for the class. Most importantly, these facilities gave 3-5 hours of their day in each of the facilities visited.

Recruitment for the class occurred in the early spring of 2008. Due to class budget constraints and maintaining a focus on facility security, the class was limited to 12 students. After the initial interviews were conducted, two simply did not attend any further preparatory meetings and two dropped for personal reasons just prior (one week) to the course beginning. By design, no deposits or coercive means were used to

guarantee a set number of participants. Willingness was viewed as a necessity for this project to be effective. The eight remaining students were from four different disciplines and two were undecided, with the majority (4) being from the Criminal Justice and Legal Studies Department. All students were at least sophomore year status and one student attended a different college than the others.

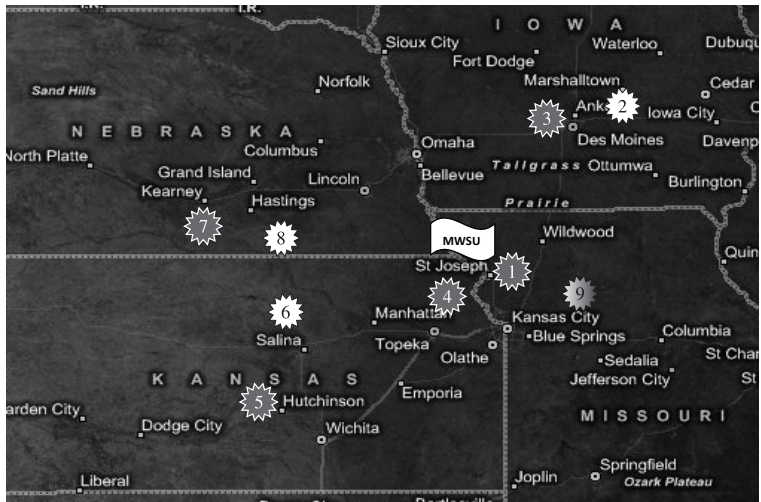
The course was designed to model a workplace applied learning experience for students, incorporating a strong emphasis on reflective models of student learning. This would allow structured lecture content to fill the necessary background students should have prior to their first field experience in juvenile corrections, while still supporting contextual exploration of the experiences. Several of these students were from disciplines outside criminal justice, so it was imperative a general understanding of juvenile justice was provided. Techniques of programmatic review (audit) were provided students in the classroom as well. A full week of intensive classroom instruction was provided on lecture topics such as: history of youth care in the United States, current status of youth care, risk/needs assessments, ethics, treatment modalities, and on-the-job stress. In addition, interview skills, field-specific terminology, and documentation training were also added to increase the perceived credibility of these students to practitioners. Students were divided between the four states (two per state) and responsible for developing a state history of youth care and an organizational description of the state's youth services.

Prior to the class beginning, instructors predicted that the numerous tours would run together for students and faculty. Having conducted interviews of staff on site, instructors knew it was imperative for students to capture their initial thoughts and feelings regarding their mentor and the facility prior to moving on to the next site. Impromptu conversational transactions regarding facility occurrences would surely be forgotten or mistaken by the end of the course. To remedy this, two instruments were developed in the class during the first week of lecture and tour preparation. The first was referred to as "Describe Your Mentor." This instrument was to be filled out immediately after the student left the facility. Each JCCAT participant was asked to provide the general demographics and tenure information about the staff serving as their mentor. In addition, descriptive characteristics regarding their guide's personality, how they treated the student (as a peer, mentee, know-nothing), and what they did with their mentor during their time were documented. In developing this tool the class was guided away from a 'check sheet' format. They were encouraged to use their own descriptive abilities in their documentation of the experience. The class settled on a tool and made only minor adjustments after the first JCCAT experience.

A second instrument, "Describe Your Facility," was designed during class lecture preparation as well. One of the two student representatives of the state the facility was located in would interview their classmates immediately after a JCCAT site. Because travel took place after each tour, students were usually interviewed en route to the next destination—creating a 70 mph captive environment. Instructors driving the travel vans were cognizant of peer impact, so no third party interruptions were allowed until all interviews were completed. Student interviewers asked their fellow JCCAT students to identify what they observed regarding facility culture, to describe the youth they observed, as well as their opinion of facility security level (low, medium, high). One of the more telling questions in this instrument was simply "Would you work here?" A simple yes or no to this question was not accepted. Interviewers were encouraged to probe for reasoning behind the student's conclusion. Finally, the two state interviewers also interviewed each other and summarized their findings in their final project, which merged the state's organizational mission and history with the JCCAT experience.

In the second week of the summer class, students had their first JCCAT at a state juvenile male facility. As designed, students were oriented by a facility administrator prior to being given about 2.5 hours to spend with front-line staff members during the course of their duties. Students were paired with group leaders, youth care workers, therapeutic professionals and some administrators, depending on each student's interest area. Course instructors were allowed to observe interactions, but at least one instructor remained in a central location for contact if necessary. Debriefing took place after the facility visit with facility administrators and the following day in the classroom, as a class. The first mentor summaries and student interviews were conducted with the assistance of the co-instructors for the course, and minor adjustments were made to the instruments.

Administrators hosting the first JCCAT followed the desired course blueprint precisely. This allowed JCCAT students to have a better understanding of expectations prior to embarking on a six day, seven facility whirlwind tour of Iowa, Kansas, and Nebraska juvenile correctional facilities, finishing their JCCAT in Missouri during the final week of the class (see Figure 1). The class visited five all-male, two all-female, and two co-ed correctional facilities during the JCCAT tour. Again, written summaries and group debriefings took place after each facility visit. Two of these facilities were mechanically secure with a fenced perimeter, but the majority of facilities resembled more of an open campus—often with only locked living quarters between the residents and off grounds. As stated by one JCCAT student: "Some of these looked like high school campuses, not correctional facilities."

Figure 1: JCCAT Tour Map

KEY: In order of JCCAT: 1. St. Joseph, MO (male); 2. Toledo, IA (co-ed); 3. Eldora, IA (male); 4. Atchison, KS (male); 5. Lamed, KS (male); 6. Beloit, KS (female); 7. Kearney, NE (male); 8. Geneva, NE (female); 9. Watkins Mill, MO (co-ed). MWSU-Missouri Western State University, St. Joseph, MO.

The JCCAT class logged over 1600 miles, visited nine facilities in four states, and experienced a truly unique and intensive learning experience in a four-week period. The efforts of the facility staff involved in these tours fell consistently above expectations of instructors and students. Open praise for the students and the JCCAT project was received from facility and staff both during and after the course. In general, all facilities followed the course blueprint with only minor alterations. Access to facility staff was limited at one facility, but program review, administrator Question and Answer (Q&A), as well as on-site lunch with youth allowed adequate facility review for the students. The majority of facilities even allowed JCCAT students access to youth during mealtime, in Q&A sessions, and several times in institutional hearings. According to student responses, it was these contacts with youth that trumped all other aspects of the tours.

EVALUATING THE EXPERIENCE

How to evaluate and measure the academic preparation for this unusual learning experience was a concern in its design. After the tours were completed, during the last two days of class, activities and discussion summarized the overall experience. This included open discussion of state systems and individual facilities (and their occupants). Students

were allowed to use their interview sheets to assist in the recall of specific facility and staff. A final exam or post-test was provided at the end of the last day of class. Test responses were not factored into the course grade and students were again allowed to use documents to assist them in recall when needed. The final test consisted of scenario questions such as:

Your potential employer's interview committee sees Law 396 JCCAT on your list of experiences that are job-related. They ask you how completing a college class would make you a more qualified employee in the juvenile justice system. What would you say?

Over half of the students used the phrase "hands on" directly in their response to this question. One student wrote: "I got to participate in everyday happenings...I didn't just get time with staff...got time with youth: boys AND girls." Almost all used phrases such as: "behind the scenes," "behind the walls," or "what really happens" to describe their JCCAT experience, also focusing on what can be learned outside the class and "textbooks." But most impressive to the instructors of the course was discussion of the differences in programs that were identified in these states. Four students directly applied their response to career goals, such as: "I could see for myself if it was the course I want my career path to take," and "I am well aware of the time [and]....additional training that will be required of me."

Based on a review of the student responses, it is apparent the learning experience outside the classroom is what stood out most to these students. Not surprisingly, lecture or in-class presentations by instructors were not as memorable in the response to this question. The work with professionals in the field as well as time with youth was the focus of their responses.

A second scenario question changed the audience for the students, asking them to identify to a graduate school advisor what JCCAT was and was not:

Your Graduate School Advisor sees Law 396 JCCAT on your transcript and is unsure what it should count towards. Your advisor asks you to describe the class. What do you say?

JCCAT students framed their responses more to the practicum/internship experience, focusing on either differences in state systems, or state philosophies of rehabilitation and security. One student stated: "We discovered how MO, KS, NE & IA differed in their facilities and their course of how the juveniles were released"—focusing more on the systems aspect, while another focused on her direct experience with "staff in the psychology-related fields," which was her academic field of choice.

Students were also asked if they believed they were properly prepared for the tour component of the class. Overall, students indicated they felt properly prepared and all indicated it was a very helpful course for those interested in this field. Two students indicated they did not feel properly prepared, but in a follow-up interview with these students, one stated: "It was more of a shock and awe than what could have been done in lecture." The second student told instructors: "I don't think I was mentally prepared for the facilities....I don't think that I was unprepared educationally as to what to expect, but it was a pretty draining experience. Definitely worth the work, though." The lasting effect this workplace learning experience had on these students was encouraging to the instructors, to say the least.

A third student brought up an interesting point regarding the collegiality of the class and stated it would have helped the tour to discuss this more often. The instructor's role in building the necessary *esprit de corps* in a class depends greatly on the makeup of the class and class ownership of the task at hand. Faculty were consulted initially by students about other students who did not follow schedules or lacked input. By the end of the class there was a distinguishable divide, but students maintained a civil response that did not interfere with project goals. Students were asked to self-rate their collegiality in the JCCAT post-test. All self-rated themselves as fair to good, but no one identified poor or excellent. Interestingly, "classmate collegiality" was rated overall excellent by half the attendees and only fair by one.

Post-tour interview sheets were copied, collected and not allowed to be altered by students. The design of these tools was to capture the initial impact of the tour site. Several students voiced their concern about this during the process, due to their ability to "compare apples to apples" (student comment) as they saw more facilities. The final classroom discussion allowed students to review all of these facilities and the state systems in hindsight in preparation for the final exam given at the end of the last day. The question "where you would like most to be employed" was again asked in their final exam. Students were asked to rank state systems and facilities. The facilities were also divided by gender to evaluate preferences by students. Two state systems were ranked either 1 or 2 (highest) by all except one student. This single exception was a student focused more on a custodial approach than the majority of other students. Interestingly, when identifying which facility the students would choose to work in (male, female, all), these individual facilities did not always fall into the same state system the students chose as their top two. One such facility (female) appeared as a particular favorite for JCCAT participants despite the state it operated in not being ranked either 1 or 2 by any student. Comments offered compassion for that particular facility's plight: "Could use/needed my help" and "Did much more with less...compared to the boys facility."

The final exam also requested student input on “Who should determine how long a youth should be committed to a facility?” This question was designed to allow JCCAT students the opportunity to merge their understanding of a system’s larger structure with those required to carry out the tasks of the job. Two states in the JCCAT made use of an indeterminate sentencing scheme, where the facility staff was responsible to determine how long a youth was committed. The other two states made use of a more formal determinate sentencing scheme, with judicial and administrative input into sentence length. This topic was discussed in class lecture, but it was uncertain if students were able to see the difference in release discretion at the facility where a youth was committed until discussing the benefits/dangers with staff mentors and administrators from different states. Course instructors predicted that all students would support facility-based control of release, but for different reasons due to the student’s academic discipline. Instructors believed that the criminal justice students would support control of release due to the behavior management benefits it provides, while the psychology/sociology/social work discipline would support facility based release for the individualized approach to rehabilitative care.

Directly contrary to the predicted results, no criminal justice JCCAT students supported release coming from facility staff where the youth was committed. We expected that discretion would be considered very important to future professionals, but apparently a *justice approach* was considered more desirable by this criminal justice group of students. Only JCCAT students coming from the psychology/social work perspective were unanimously in favor of facility-based release, focusing more on an *individualized* approach to release readiness.

To assist future offerings of JCCAT or other such multi-site applied learning experiences, students were also asked to rank travel, hotels, personal time allotted, and facility preparedness. The services encountered in these mostly rural communities where facilities are located were found to be extremely hospitable and accommodating to the limited budget of the trip. All students ranked meals, hotels, and travel comfort “above average.” Only one student ranked “facility preparedness” as fair, but all other aspects of JCCAT organization and “comfort” were ranked “good” or “excellent.” Classroom climate in experiences such as JCCAT does involve much more than the typical collegiate lecture hall. The learning environment should not be too strenuous, and concern for “down time” for these students to digest this experience was considered very necessary. One student directly commented on her fear that “overnight stays sounds like you may never have free time, but as soon as you’re out of the facility [and] conversed [with other people], you got time to yourself.”

Students were asked in their initial interview (prior to the course) if they had any apprehensions about entering a secure facility. JCCAT

was, in fact, several students' first experience inside a secure facility. In the final exam, all students identified feelings of safety being "excellent" during the JCCAT experience. This is certainly a testament to the facility mentors and managers who were involved in this course, but one that should not be taken for granted or assumed when developing workplace-designated applied learning experiences. Specific attention should be given to how students view their learning environment to ensure there are no roadblocks, real or perceived, to this experience. Reflective, ongoing communication between instructors and learning groups can assist in achieving this goal.

LECTURE CONTENT

To provide JCCAT students credibility with the facility staff, as well as the ability to evaluate key components of facility culture, it was imperative the class was properly prepared. In an analysis of the first week's lecture content, students were asked to identify lecture topics they actually heard being discussed in the facilities. Once again, students were allowed to consult their facility notes. The students identified each of the lecture topics discussed in class preparation as being addressed by staff or administration in the facilities visited (see Table 1). Interestingly, every student reported that *Job Stress* was discussed by staff at every facility they visited. Other topics reported as being discussed in the majority of facilities (median of 3 or higher: over half but not all facilities) were: *Outside Regulating Agencies, Risk and Needs Assessments, Juvenile System, Responsivity, Sentencing, Outcome Measures, Discretion, Difficulties of Reform, Treatment Modality, Rehabilitation, and Culture*.

Due to the relatively small class size, limited generalizations can be made. What is important to faculty preparing to teach workplace-centered courses is to be able to identify topics that are also significant to employers/employees where the students are going to be placed (in the case of JCCAT, juvenile correctional facility staff). This will ensure coursework is geared to current practice, allowing students to be in tune with what is of most concern in their desired occupation. For example, based on these interactions between student and facility staff, job stress is a very real issue to those working in the field. Students were able to discuss job stress that veteran and newer staff experience on a daily basis and how they get through these situations to show up another day. As discussed in lecture, students found that it is rarely the youth that are in the staff member's care that create the most stress on the job for staff. It is instead their peripheral responsibilities and roadblocks to what they view is necessary to help the youth.

Table 1: Students' recall of lecture topics discussed in facility: N=7. Median is reported (right column).

Regarding lecture content: Please circle the appropriate answer to the following lecture topics <u>you heard</u> being discussed or mentioned while in the facilities.	1 Not discussed in any facility	2 Some facilities but not over half	3 Over half but not all facilities	4 All facilities this was discussed	<u>Median</u>
Outside regulating agencies	0	1	4	2	3
Ethical dilemmas	1	3	3	0	2
Risk and needs assessment	0	0	2	5	4
Juvenile corrections history	0	4	2	1	2
Juvenile system as it relates to juvenile corrections	0	2	3	2	3
Females in juvenile corrections (difficulties, needs & response)	0	4	3	0	2
Responsivity	0	1	5	1	3
Sentencing (as it relates to facility goals & practices)	0	1	1	5	4
Outcome measures	0	3	2	2	3
Discretion	1	2	4	0	3
Disproportionate Minority Confinement	0	5	2	0	2
Difficulties of reform	1	2	3	1	3
Treatment modality	0	1	3	3	3
Rehabilitation	0	1	4	2	3
Juvenile crime rates and victimization	0	0	5	2	3
Job stress	0	0	0	7	4
Culture	0	2	4	1	3

Somewhat concerning in these findings was the limited discussion of disproportionate minority confinement by those in the facility. This issue remains central to introductory coursework in juvenile justice, but appears to be considered less pertinent by facility staff. A possible explanation considered during debriefing was it may be the staff member's willingness to work with whoever is committed that makes the difference, taking little responsibility for how the youth arrived in

their care. In addition, the fact that the racial makeup of these facilities has changed little over much of the tenure of the staff could lead to the application of “that is the way it is, has been, and will be” to justify these trends. JCCAT students quickly identified differences in staff racial makeup relative to the population of youth they served. Interestingly, this point seemed to lose its initial effect on students as more tour sites were visited—desensitization that is not so different than what is experienced in the field or discipline.

Based on student reflection during the final exam, the lecture preparation was overall on topic to the current concerns of those in the juvenile correctional field. All topics discussed in the classroom were identified in at least one facility by students. Notable to instructors was the students’ understanding of terms such as *Responsivity* or *Culture*, which would become evident during debriefing sessions. These are not always easy concepts for the student, but when the student could apply each idea to active interactions with staff and facility observations, they demonstrated the ability to translate the meaning of the academic term into the practical events and common facility language. Workplace learning may not always appear as a direct reflection or in the context of a specific example used in the classroom. The student’s ability to translate and utilize these concepts is indeed a proud moment for their instructors.

DISCUSSION

Allowing students to view and process the difference in state missions and juvenile facilities was the focus of this applied learning experience. To teach how an organization’s mission is reflected in the performance of an individual facility is a point difficult to drive home to students via textbook and lecture hall. Even if the student is fortunate enough to have field experience, this is usually limited to one system. In addition, the ability to compare like experiences in the field with peers and faculty enhanced the learning process. This often occurred via agitation within the group of students. For example, due to the multidisciplinary makeup of the class, some viewed with disfavor the open campus of facilities while others challenged the razor wire surrounding other facility grounds. This provided some interesting exchanges within and outside the classroom, which would occasionally require refereeing. Students were encouraged to look past their initial opinions and impressions, but not to ignore them. To provide a true critical assessment of a facility’s mission, students were challenged to examine what are the goals of the organization first, before they determined whether the facility is meeting those goals. As seen firsthand by the class, a system that focuses on custody and professionalization will appear different than one that has a dynamic focus on peer involvement in treatment. A student may feel

more comfortable working in one type of system or the other, but this is not to say that the other is performing its mission poorly.

Few issues raised more vocal concern with the JCCAT class than the differences between male and female facilities. The female youth facilities were viewed by the class as insufficiently funded and in poor physical condition. In an interview by our university magazine, one JCCAT student stated: "I was upset and shocked. ...It was space age for boys and pioneer for the girls" (Holtz, 2009, p.6). The class debriefing of this issue provided an opportunity to examine a state's willingness to fund a philosophy of community protection versus individual youth need. The perceived social threat of the young male delinquent versus the need to protect the female delinquent was discussed, as it is in most *Introduction to Juvenile Justice/Delinquency* textbooks. Unlike traditional lectures, the class was able to use personal observations as reference to this dilemma. For several JCCAT students, these facility funding differences led to a change toward commitment to work with girls if given the opportunity, even despite the vast majority of staff in male, female, and coed facilities identifying delinquent girls as being more "difficult" and "challenging" to work with than male youth.

DEVELOPING LEARNING SPACE

This paper would be incomplete without addressing the necessity of timely debriefing and creating the necessary learning spaces in workplace experiences such as the JCCAT (Kolb & Kolb, 2005; Bailey et al., 2004). Issues such as facility staff demeanor, youth behavior, and somewhat challenging ethical decision making by staff were considered and reviewed within a short period of time between students, students and faculty, and also with practitioners. Students were instructed to remain focused on their task, but to discuss these incidents with course instructors who would then present the incident to facility administrators. Three such incidents did occur during JCCAT.

The benefit of immediate processing of student observations and concerns was evident in the confidence the class displayed in their interactions with facility staff and each other as the JCCAT progressed. Students even began requesting additional debriefing sessions to discuss their observations, indicating a personal commitment to the project. This was also evident in the final exam comments: "more time dedicated to interviews" and "group meetings (class, not institutional) were good but should be used more often." Courses that apply active field participation for the future professional should consider the position of these students. The student is left to disentangle ethically challenging experiences without assistance from faculty or peers. In addition, relying solely on the practitioner's perception of how daily activities merge into the overall

organizational mission will most likely limit the growth of the student's understanding of their future vocation (Sgroi & Ryniker, 2002). This can result in the student developing an overall negative perception of the agency and field, when in fact it may be simply an isolated experience (Jordan, Burns, Bedard, & Barringer, 2007).

JCCAT SUMMARY

In hindsight, this class was an exhausting endeavor for instructors and students. These types of experiences abound with the possibility of pitfalls in planning, student (faculty) personality clashes, and facility incidents threatening the advancement of the project. In this case, these types of problems failed to rear their ugly heads, making the result fully worth the effort. It was refreshing to see the excited undergraduate student knowledgeably discussing issues with professionals in the field. Students intrigued by what they hear, view in the media, or read often have an almost uncontrollable desire to be a part of something they have only observed haphazardly. By coupling knowledge of the system with actual observation, these JCCAT students were able to develop an informed outlook of the impact the individual facility staff can have on achieving an organization's mission. This is especially important for students entering a field where subsystems exist within a system, but each maintains a diverse and sometimes competing group of activities. For example, the juvenile justice system has judges, police, and correctional workers all participating in a general mission, but having specific duties that tend to overlap and conflict (Leiber, Schwarze, Mack, & Farnworth, 2002). Teaching early that efforts of cooperation do matter as a way to reach the mission of an organization is a necessity for educators.

The JCCAT class should be commended for improving the relationship between academia and current practitioners in this specific field. One facility manager wrote: "This was a great day...many of the staff involved appreciated being able to 'show off' their talents and educate others. It was a win/win situation for everyone." The accolades given students by facility representatives were numerous and seemed to focus clearly on the level of understanding of the JCCAT class of system mechanics, or "how prepared they were for what we do" and "the feedback I received from my staff is that your students were great.. They seemed real interested and asked good questions. My people enjoyed your people, come back ANY time." The post-tour Q&A with administrators would often resemble a peer discussion more than a classroom or training session. By the end of the JCCAT tours, facility staff and the students were openly comparing program and systems from different sites where these practitioners had also traveled. These experiences serve as confirmation to the value employers place on those with college degrees, easing the transition from student to practitioner.

Although the co-instructors were happy with the student turnout and efforts for this course's inaugural run, future JCCAT type courses could be greatly enhanced by expanded recruitment and developing methods to ease the burden for students to participate. These methods could include student travel funding, scholarship opportunities, or simply making space available in curriculum requirements to allow students the chance to personalize their own education. In this class, having male students involved may have provided a significantly different perspective to the information gleaned from those on the tour. Facility administrators also commented openly on the need for younger male role models for the youth in their care, a pool higher education can provide these facilities which are often found in remote, rural areas.

Applied learning experiences in the workplace provide faculty a unique way for students to remain bonded to their field of interest. A thorough understanding of organizational needs will greatly increase the course planner's ability to develop these types of applied learning experiences (Jeffords, 2007). Early in the course planning, facility administrators discussed the reality of one academic discipline not being sufficient to produce an effective environment to change troubled youth. In retrospect, the tension produced in mixing academic disciplines further enhanced the learning experience and, in the end, served to better prepare these future professionals for this challenging vocation and the wide range of individuals they will be working with. Academics must be willing to cross the often well guarded academic boundaries to develop the types of workplace opportunities that will benefit both the student and the field.

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Student Motivation and Assessment of Applied Skills in an Equine Studies Program

K.I. TUMLIN
Midway College

R. LINARES
Midway College

M.W. SCHILLING
Mississippi State University

Student motivation is a universal teaching challenge. A holistic approach to assessment was developed for cognitive and psychomotor tasks in equine studies. First-year students (n=55) were either randomly provided (PR) or not provided (NP) a rubric 3 weeks prior to skills testing. The PR students earned lower total scores ($p < 0.05$) than NP students (12.8 and 17.1 ± 5.3 , respectively). In individual categories, PR and NP students had similar ($p > 0.05$) pass superior scores. Third-year students ($n = 7$) self-rated task performance using an affective rubric and reflection exercises. Although the original goal was to promote standardization of hands-on skills, these data indicate that students are more goal-oriented than process-oriented; furthermore, use of affective rubrics for self-assessment promoted a learner-centered approach to motivation.

Midway College held a virtual monopoly on equine programs in Kentucky when its program was started over 20 years ago. As student and industry demand for equine academics has increased, approximately 185 institutions in the United States have launched programs with diverse offerings as degrees, concentrations, or coursework focusing on the horse industry (National Association of Equine Affiliated Academ-

ics, 2009). This demand has followed the growth of the equine industry in the United States. The American Horse Council (2005) reported in a national study targeted at horse owners that there are approximately 9.2 million horses, which is higher (3.6 million) than the untargeted study by the United States Department of Agriculture, National Agriculture Statistics Service (USDA, 2002). In addition to horse numbers, the American Horse Council concluded that the equine industry has a dramatic impact on the United States economy. In terms of the Gross Domestic Product (GDP), this industry contributes a total of \$39 billion, which is greater than the motion picture industry, railroad transportation, furniture manufacturing and tobacco product manufacturing services (The American Horse Council, 2005). In Kentucky alone, the equine industry has a reported economic impact of more than one billion dollars (Center for Business and Economic Research, 2004). For the first time, the 2010 World Equestrian Games will be hosted in the United States in Lexington, Kentucky. This event will create jobs and internship opportunities in several aspects of the industry. Recently, as a greater percentage of students from urbanized communities have enrolled in applied animal science programs (Britt et al., 2008; Hoover & Marshall, 1998; Reiling et al., 2003), development of standardized curriculum and assessment to meet the needs of students with either extensive or non-existent animal handling skills is necessitated.

Although educational opportunities in the equine industry have increased over the last 20 years, there is no universally adopted skill set required for graduates of existing equine programs. Potential career paths require mastery of both hands-on skills and business knowledge (Connors & Brady, 2009; Houge-Davies, 2004; Kretler, 1995). For instance, an equine professional having direct contact with horses should be able to assess the health and welfare of the horse, sense and interpret physical changes with their hands and visual inspections, interpret behavior, perform training of the horse for a specific purpose, assess and manage feeding and nutritional needs, communicate with clients and medical professionals, and perform accounting tasks plus many more business management activities (Connors & Brady, 2009; Houge-Davies,

AUTHOR NOTE: Kimberly I. Tumlin, Ph.D., Assistant Professor at Midway College; Rachel Linares, M.B.A., School for Career Development, Midway College; Wes Schilling, Ph.D., Dept. of Food Science, Nutrition, and Health Promotion, Mississippi State University. The authors would like to thank all of the students for their participation in this project and for their valuable feedback on the teaching and learning process. Correspondence concerning this article should be addressed to: Kimberly I. Tumlin, 512 E. Stephens St, Midway, KY 40347, e-mail: ktumlin@midway.edu

2004; Landers, 2002). Clearly, the wide array of skills necessitated for such careers confounds development of academic standards for teaching equine studies.

The Equine Studies Program at Midway College consists of two Baccalaureate degrees and one Associate degree. The Baccalaureate degrees are Bachelor of Science in Equine Studies with Concentration in Equine Health and Rehabilitation and Bachelor of Arts in Equine Studies with Concentration in Applied Equine Management. All degree programs require mastery of hands-on skills in addition to specific cognitive and assessment tasks. At entry, the majority of students display some level of equine experience, but there is neither a common level of proficiency nor a similar training background among students. To address these differences, a four course sequence of Practicum classes is required of all equine studies students at Midway College.

Hands-on skill learning is often evaluated only by achievement of the assigned task after repetitive practices. Similar to rote memorization of facts, this repetitive performance can be perceived as boring or insignificant, thereby decreasing intrinsic motivation to learn a new skill (Char, 2009). Further, pre-existing knowledge of equine handling does not correlate to re-learning skills in a safe method (Meek et al., 2005). When students do not perform a skill following the in-house method, it is more difficult to reduce potential safety hazards. Besides safety, the learning process is often disrupted because inexperienced students are initially not as comfortable handling horses and look for guidance from experienced students (Meek et al., 2005). Applied learning with horses is unlike chemistry experiments where mixing of specific chemicals provides a predictable reaction (or no reaction). Horses are unpredictable animals that react to the environment to satisfy basic survival needs. Therefore, this unpredictability poses a problem in standardizing the teaching and learning process and can present interference as less confident students express lower motivation in situations that are perceived to be unsafe. In consideration of these challenges, a teaching tool was investigated as a means to link the process of critical thinking to action.

Generally, rubrics are part of a teacher's daily routine in which rubrics are created and utilized to accurately achieve a grading standard. Rubrics are a form of authenticity set to guide both students and teachers in assignment evaluation and are often subjective in nature. They are commonly seen in writing courses and used for assessment testing in primary schools (Andrade, 2000; Andrade & Du, 2005; Char, 2009; Loveland, 2005). According to Loveland (2005), rubrics are vital because of the need for clear descriptions of project expectations, and upon review, rubrics provide a clearly delineated path for students to improve their work. Loveland also stated the benefits of a well-planned and thorough rubric for teachers. Development of an original rubric requires

instructors to take a retrospective view of a task for which they are writing the rubric (Leonhardt, 2005). Other authors echoed the need for rubrics to be clear and concise (Andrade, 2005; Andrade & Du, 2005; Issacson & Stacy, 2009). If students do not have prior knowledge of the categories defined on a rubric, then rubric usage can create frustration, be dismissed, or be used only in a partial format (Andrade & Du, 2005). To increase effective use of rubrics, students should practice using the assessment tool (Andrade, 2000; Hafner & Hafner, 2003; Tan & Towndrow, 2009). Often students will use a rubric as a study guide or outline for developing written projects (Andrade & Du, 2005), medical task performance (Brown et al., 2006), and formative development of music skills (Leonhardt, 2005) indicating that such an assessment tool is useful in the teaching process.

For this research project, a rubric was chosen as a teaching and assessment tool because each hands-on task, or psychomotor skill, could be subdivided into parts and performance measures could be evaluated; thereby the process of teaching and learning the task would be standardized. In theory, providing the assessment tool prior to a task should improve student scores; therefore, the objective of Phase I was to determine if prior knowledge of the assessment tool would increase overall scores as well as scores on individual steps as compared to groups that did not receive the rubric. Based on results from Phase I, a second objective was developed to determine if student motivation to perform hands-on skills is enhanced when provided with an affective rubric for self-assessment.

METHOD

PHASE I

A faculty-derived rubric was developed for a showmanship pattern, which is a skill commonly found in showing horses for competition and sale. This task is universal in that all breeds and disciplines in the industry use showmanship for marketing their horses and/or service businesses. Although some variations in horse presentation and handler dress exist, efforts were made to prepare a rubric which would be applicable across breeds and disciplines. The showmanship skill involves the student making preparations with a horse several weeks prior to completing the task; therefore, students would require adequate time to prepare for assessment. Steps to create an original rubric were modified using a previously described method (Leonhardt, 2005). The rubric was subsequently revised, based on student and faculty feedback following an initial review as previously suggested (Murthy & Etkina, 2005). First-year students ($n = 55$) were either randomly provided (PR) or not provided (NP) the rubric three weeks prior to skills testing. In this instance, the

task was desegregated into 11 categories with a pass superior, pass, or fail scoring category worth 2, 1, and 0 points, respectively (Table 1). Once the students were assessed using the rubric, data were analyzed by the Proc GLM procedure of SAS with judge and whether or not the rubric was provided as test variables. Significances were determined at $p < 0.05$ with tendencies noted between $p = 0.05$ and $p = 0.10$.

PHASE II—PILOT STUDY

As the equine industry incorporates non-invasive performance enhancing techniques such as hydrotherapy, massage, and water treadmill exercise, there is increased demand for individuals with both knowledge and the ability to synthesize and evaluate healing and physical condition visually and through tactile sensations. Unlike human rehabilitation, horses do not provide reliable feedback on how the student is applying touch; furthermore, educating students to have 'thinking hands' presents a challenge. A holistic approach to teaching sensory perception was implemented in a series of manual integration courses. The activities were designed in a sequential format to promote movement through all six cognitive levels (Bloom, 1956), and using methods from an experiential learning model previously applied in a large-animal practical course (Reiling et al., 2003). Tools for teaching touch in other fields, such as nursing, were used in conjunction with lecture materials. Further, laboratories were developed using heating packs and false hair samples to simulate heat and cold perception. During a touch laboratory students were expected to apply self-massage techniques on the arms, hands, shoulders, and head to explore feeling. Students were also assigned to apply massage techniques on a project horse for the course of two semesters. Students were required to self-assess affective characteristics of "comfort" and "feeling" (Table 2) immediately following completion of aforementioned exercises. Students were then asked to reflect on the experience in a written format and were led in an informal group discussion regarding the affective rubric to determine usefulness and motivation to learn the novel tasks.

RESULTS

PHASE I

Sample tasks and assessment standards included a measurable outcome for many of the showmanship steps (Table 1). For example, the task of pivoting a horse 90 degrees is measurable by the amount of pivot. However, some tasks were considered more subjective by the raters than those with a clearly quantifiable value. For each task category, students

Table 1: Rubric for the showmanship task

Task	Pass Superior	Pass	Fail
Stand horse at cone 1; ready and waiting to be judged	Horse is standing quietly in the proper stance for the breed/type shown. Horse's shoulder is at the cone. Handler is showing in the appropriate quarter, exhibiting a precise show stance.	Horse is standing quietly in the proper stance for the breed/type shown. Horse's shoulder is near the cone. Handler is showing in the appropriate quarter, exhibiting a loose but technically correct show stance.	Horse is not standing in the proper stance for the breed/type shown. Horse's shoulder is uneven with the cone. Handler is not showing in the appropriate quarter. Handler is not exhibiting a proper show stance.
Wait for the judge to nod in acknowledgment of the handler	Handler waits for the judge to nod. After the nod, the handler moves promptly into the pattern.	Handler waits for the judge to nod. There is a slight hesitation before the handler moves into the pattern	Handler does not wait for the judge to nod. There is an obvious hesitation before the handler moves into the pattern.
Walk from first to second cone	Line of travel is straight. Horse moves off without hesitation with a brisk forward motion. Handler maintains a proper distance away from the horse and even with the horse's ear.	Line of travel is fairly straight. Horse moves off with slight hesitation with forward motion. Handler maintains a proper distance away from the horse and even with the horse's ear.	Line of travel is not straight. Horse shows obvious hesitation in starting forward. Horse may exhibit backward motion. Forward motion is sluggish and lacks energy. Handler does not maintain proper positioning in relation to the horse.
Halt; Pivot 90 degrees to the right at cone 2	Horse halts squarely with shoulder even at cone 2. No backward movement is observed. Horse moves smoothly into the pivot, keeping forward motion with the front feet and left hind foot, and planting the right hind foot. The haunch turn is exactly 90 degrees.	Horse halts squarely with shoulder even to cone 2. No backward movement is observed. Horse shows slight hesitation moving into the pivot, keeping forward motion with the front feet, and planting one of the hind feet. The haunch turn is exactly 90 degrees.	Horse does not halt squarely. Horse's shoulder is not even with cone 2. Backward movement is observed. Horse shows obvious hesitation moving into the pivot and shows backwards motion with the front feet. The haunch turn is not equal to 90 degrees.
Trot/jog from cone 2 to cone 3	Line of travel is straight to the judge. Horse moves off without hesitation with a brisk forward motion. Handler maintains a proper distance away from the horse even with the horse's ear.	Line of travel is fairly straight to the judge. Horse moves off with slight hesitation with forward motion. Handler maintains a proper distance away from the horse even with the horse's ear.	Line of travel is not straight to the judge. Horse shows obvious hesitation in starting forward. Horse may exhibit backward motion. Forward motion is sluggish and lacks energy. Handler does not maintain proper positioning in relation to the horse.

Handler and horse halt at cone 3; handler stands horse	Horse halts squarely with shoulder even at cone 3. No backward movement is observed. Horse is standing in the proper breed stance within 6 seconds of the halt. Handler is showing in the appropriate quarter, exhibiting a precise show stance.	Horse halts squarely with shoulder even at cone 3. No backward movement is observed. Horse is standing in the proper breed stance within 15 seconds of the halt. Handler is showing in the appropriate quarter, exhibiting a loose but technically correct show stance.	Horse does not halt squarely. Horse's shoulder is not even with cone 3. Backward movement is observed. Horse is not standing in the proper breed stance. Handler is not showing in the appropriate quarter. Handler is not exhibiting a proper show stance.
Handler presents horse in quarters	Handler consistently stands in the appropriate quarter in relation to the judge. Movement in front of the horse is precise and quick, using a minimum of steps.	Handler consistently stands in the appropriate quarter in relation to the judge. Movement in front of the horse is smooth, but lacks preciseness and energy.	Handler does not stand in the appropriate quarter in relation to the judge. Movement in front of the horse lacks smoothness and looks stilted and awkward.
Handler turns horse 270 degrees to the right; walks to line up area	Horse moves smoothly into the pivot, keeping forward motion with the front feet and left hind foot, and planting the right hind foot. The haunch turn is exactly 270 degrees. Horse departs smoothly into a forward, energetic walk.	Horse shows slight hesitation moving into the pivot, keeping forward motion with the front feet, and planting one of the hind feet. The haunch turn is exactly 270 degrees. Horse departs fairly smoothly into a forward walk.	Horse shows obvious hesitation moving into the pivot and shows backwards motion with the front feet. The haunch turn is not equal to 270 degrees. Handler turns horse the wrong direction. Horse shows hesitation at the walk and does not exhibit an energetic gait.
Handler lines up and remains showing horse	Horse is standing quietly in the proper stance for the breed/type shown. Handler is showing in the appropriate quarter, exhibiting a precise show stance.	Horse is standing quietly in the proper stance for the breed/type shown. Handler is showing in the appropriate quarter, exhibiting a loose but technically correct show stance.	Horse is not standing in the proper stance for the breed/type shown. Handler is not showing in the appropriate quarter. Handler is not exhibiting a proper show stance.
Overall - Handler's attire	Handler is dressed in the appropriate attire for the breed/type being shown. Attire is of the highest show caliber.	Handler is dressed in the appropriate attire for the breed/type being shown. Attire is functional, clean and fitted.	Handler is not dressed in the appropriate attire for the breed/type being shown. Attire is dirty, has holes in it, and does not fit well.
Overall - Horse's appearance	Horse is very clean and passes the white glove test. All markings are gleaming white. Horse is appropriately clipped. Mane and tail are braided/banded appropriately. All equipment is clean.	Horse is clean, with some dust showing on the white glove test. All markings are clean. Horse is appropriately clipped. Mane and tail are clean, brushed and free from tangles. All equipment is clean.	Horse has obvious dirt showing and does not pass the white glove test. Markings have stains or visible dirt. Horse is not clipped. Mane and tail are tangled and dirty. Equipment clearly has not been cleaned.
Final Score:	Number of "Pass Superior" x 2 =	Number of "Pass" x 1 =	Number "Fail" x 0 =

earned a score (Fail = 0, Pass = 1, Pass Superior = 2) that was compiled to equate to a total score. An overall score of 11 was considered passing for the assessment. The results demonstrated that the PR students earned a lower ($p < 0.05$) total score of 12.8 than the NP students earned of 17.1 (Table 3). In consideration of individual score categories (Table 4), the PR and NP students had similar ($p > 0.05$) pass superior scores. Interestingly, PR students demonstrated higher ($p < 0.05$) pass scores than the NP students. Conversely, higher ($p < 0.05$) fail scores (1.4) were noted in NP students as compared to PR students (0.1).

Table 2: Assessment rubric for comfort and feeling

Comfort	I was/am 20% comfortable with performing this exercise.	I was/am 40% comfortable with performing this exercise.	I was/am 70% comfortable with performing this exercise.	I was/am 100% comfortable with performing this exercise.
Personal Feeling	I am exhausted; I feel drained; I feel sore in my hands and shoulders; I am 100% dissatisfied with the session	I am neutral; I feel neither drained nor energized; I feel sore in my hands and shoulders; I am only 25 % satisfied with the session	I am neutral; I feel neither drained nor energized; I feel good overall; I feel sore in my hands and shoulders; I am only 70% satisfied with the session	I am energized or at least feel the same as I started the session; I feel grounded; I feel only minor soreness in my hands and shoulders; I am 100% satisfied with the session.

Table 3: Total scores for students (n = 55) either provided the rubric (PR) or not provided the rubric (NP) prior to the skill assessment.

Student Group	Total Score ¹
PR	12.8 ^b
NP	17.1 ^a
	(5.3)

¹Total scores for all rubric categories (mean square error for total scores)

^{ab} Values with unlike superscripts within a column are significantly different at $p < 0.05$

Table 4: Individual score categories for students (n = 55) either provided the rubric (PR) or not provided the rubric (NP) prior to the skill assessment.

Student Group	Score Category ¹		
	Pass Superior	Pass	Fail
PR	2.3 ^a	6.1 ^a	0.1 ^b
NP	3.3 ^a	2.0 ^b	1.4 ^a
	(3.5)	(2.9)	(0.2)

¹Individual scores for all rubric categories (mean square error for total scores)

^{ab} Values with unlike superscripts within a column are significantly different at $p < 0.05$

PHASE II

A standardized rubric (Table 2) for assessing affective values in performing tactile skills was rated as 100% (7 of 7 responses) useful by students. When asked to analyze individual progress over the semester, students indicated that their comfort and personal feeling scores decreased under two conditions: when a task was novel or when external stressors (exams, personal situations, lack of rest) impacted their participation. Faculty observations of student involvement in course activities noted that as students realized that their peers were also feeling uncomfortable or tired, the class was more likely to participate in discussions and expressed more eagerness to apply the techniques in a practicum setting.

DISCUSSION

Results from the initial study agree with the concepts identified in both the arts and music fields (Mason & Steedly, 2006; Meier et al., 2006; Leonhardt, 2005). There were notable discrepancies in the use of individual steps of the rubric, making assessment complicated. However, based on focus group discussions with raters, the faculty-derived rubric was desegregated into appropriate categories and considered useful, although measurement of 'usefulness' was not determined in Phase I. From these discussions, the importance of providing a method for quantifying performance under each task category was noted.

Although not clearly addressed, other works utilizing rubrics for psychomotor skills often include some form of quantitative measure (Brown et al., 2006; Seybert & Barton, 2007), although such values were not consistently included in rubrics used for writing skills (Andrade, 2005; Loveland, 2005). By nature, the rubric as an assessment tool should make grading less redundant by limiting the number of times a professor writes the same comment and provides a means for student understanding of grading standards (Brookhart, 2003). Descriptors such as "few," "wide variety," "slowly," "many," are open to interpretation resulting in differences between rater and student interpretation. The differences between the need for quantitative measure in rubrics for cognitive skills as compared to psychomotor skills may be related more to field of study. For instance, in nursing, a "likely harmful" score in a rubric dealing with application of aseptic technique for preparation of aseptic products may result in injury, illness or death depending on the ultimate use of the product (Brown et al., 2006). In consideration of an increased risk to humans or animals, rubric categories should be quantifiable by time, proportions, or other forms of measure to limit rater interpretation and subjectivity. As a means to address clarity in rubric use, proportions were implemented into the rubric developed for Phase II. The use of

proportions gave raters the ability to assess the value of their affective response on a commonly known scale. These alterations aided in creating clarity of the assessment tool, which is in agreement with previous work (Andrade & Du, 2005; Meier et al., 2006).

Murthy and Etkina (2005) designed a rubric to assess their students' abilities in devising solutions to a laboratory problem and conveying their solution in a written format reports in a large enrollment introductory laboratory course. The average final exam score for the sample group was 78.3 as compared to the class average of 75 out of 100 possible points. The authors indicated a need for development and revision of the rubric prior to use and suggested that student performance improved after receiving the rubric (Murthy & Etkina, 2005). These data contradict the findings in Phase I. Apparently students in Phase I PR group were motivated to accomplish a "passing" score, but not motivated enough to achieve a "pass superior" score. Further, there were more students to both "fail" and "pass superior" in the NP groups reflecting the highest and lowest motivation for achieving the overall skill.

Compilation of student reflections into several themes demonstrated in both phases of this study that the overall experience of using a rubric was positive and alleviated much of the confusion often associated with the "how-to's" of hands-on skills. The students in Phase II reflected that the rubrics should be created for all equine courses to help alleviate subjectivity in assessment. This theme supports the faculty observation that perception of fairness in assessment and clearness of expectations enhances motivation and willingness to learn these skills and agrees with similar findings in the writing field (Andrade & Du, 2005) and for oral presentations (Hafner & Hafner, 2003). Despite this positive theme, there were student-derived recommendations for improvement of the assessment tools. The first recommendation theme was that some steps in the skills rubric should be weighted as critical points, and the skill steps should be even more detailed to make the teaching and assessment tool more effective. Another recommendation was that all students could have benefited from having the tool in advance for practicing hands-on skills; however, based on student scores in this trial, this perception does not result in achievement of the highest possible score. This discrepancy between attitude towards the rubric use and perception of performance level was also observed in the application of music skills (Char, 2009; Schmidt, 2005). Assessment of a student's motivation to practice a task as compared to performance of that task may be a better means to differentiate intrinsic from extrinsic motivators (Schmidt, 2005).

USE OF RUBRICS AND STUDENT DEVELOPMENT IN APPLIED LEARNING

Bloom's Taxonomy of Learning dictates that learning occurs in three different manners: cognitive (knowledge), affective (attitude), and psychomotor (skills) (Bloom, 1956). In an equine studies program, a base level of cognitive learning is necessary so that the student understands theory and background common to the industry. Also necessary is a high level of psychomotor learning in an effort to achieve practical applications. This presents a challenge to the instructor who must balance the levels and application of cognitive and psychomotor learning within a given lesson. In addition to complicating the teaching process, the combination of cognitive and psychomotor elements creates a challenge in assessing student performance. Students demonstrating a particular task (evidence of the skill) are not usually expected to also demonstrate cognitive learning (either in verbal or written format). Conversely, students demonstrating cognitive learning generally are not required to demonstrate psychomotor learning with a horse in the classroom environment.

A framework describing the different stages of psychomotor learning has been previously described (Simpson, 1972). Within this framework a student progresses through the steps of perception, set, guided response, mechanism, complex overt response, adaptation, and origination. These divisions progress from basic learning of a skill (perception and set) to advanced mastery of the skill resulting in spontaneous improvement as a response to specific problems (origination). Within an equine studies program, professors encourage students to progress from guided response to at least the mechanism step. As students progress to the mechanism category, they have moved into the intermediate stages of learning. During this type of psychomotor learning, response and actions become habitual, and the student displays a moderate amount of confidence when displaying skills (Simpson, 1972). Students in equine programs are traditionally assessed by demonstration and subsequent comparison of the psychomotor skill to a standard, which is defined in-house or by a respected equine professional. However, achievement of the skill is not always the entire purpose of teaching the task, and some methods of performing individual skills put both the horse and student in potentially dangerous situations. These skills are often not intuitive or inherently logical; therefore, safety issues and program inconsistencies dictate the need for these skills and the learning experience to be standardized. In the equine industry, judging standards associated with showing of various breeds and disciplines exist; however, clear holistic standards that reach across all breeds or disciplines do not. In other fields, there are standardized tests for outcome-based cognitive learning.

The data presented in this trial indicate a combination of an assessment rubric developed for a specific psychomotor task and an affective rubric for self-assessment are viable options for teaching and assessing applied skills in the equine studies field.

Previous experiences with handling horses affect student comfort in performing applied tasks (Meek et al., 2005). Through further development of rubrics for other equine studies skills, as indicated in this study, the hands-on experience could be standardized. Furthermore, well-constructed rubrics may also assist in developing intrinsic motivation for learning these skills when students demonstrate pre-existing horse experiences. Inexperienced students could benefit from these tools by having a clearly delineated step-wise process. Both Andrade and Du (2005) and Brookhart (2003) reported that formative assessment of "good writing" results in students transferring their rubric-based conceptions of quality work into other courses and to other students. As academic programs in the equine studies field grow, further development of teaching and assessment tools which standardize hands-on skill learning and the critical thinking process would promote cohesiveness of equine studies programs, enhance student motivation, and provide a means for documenting student progress. Other fields of study that do not have the benefit of multiple leading generations might also benefit from development of similar tools to promote standardization, motivation, and documentation of student learning.

Experiential learning and more specifically active learning is an instructional method which engages students in the learning process and requires that students think about what they are doing instead of solely memorizing facts (Lohuis et al., 1999; Prince, 2004; Tan & Towndrow, 2009). In this study, rubrics were used as applications of universal intellectual standards (Paul & Elder, 2001) for teaching and assessment of hands-on skills. Based on focus group discussions, the student learning experience was positive, and the tools served as effective means for linking critical thought to action. Students were encouraged not only to perform a skill, but to evaluate how to perform that skill. This observation has also been recently documented in students learning music skills (Char, 2009). By using rubrics in this method, the process of critical thinking was introduced in a non-threatening manner. Students clearly struggled with converting from cognitive to affective and self-reflective activities as indicated through observable expressions of frustration and dissatisfaction in Phase II. These observations support the data from Phase I of students being more goal-oriented than process-oriented. The results from Phase I clearly delineated that first-year students may not work to the highest score level when provided with the assessment tool, which is in agreement with results in the music (Char, 2009) and writing (Andrade & Du, 2005) fields. Motivation in third- and fourth-year stu-

dents is often perceived as less about comfort and more about focusing on graduation or employment goals. Clayton (2009) stressed the development of learning objectives for "critical reflection [that] generates, deepens and documents learning" (p. 7). Similarly, in nursing clinical education, the use of rubrics aided not only in instructor feedback, but also student application of critical thinking and reflection (Isaacson & Stacy, 2009). In making the shift from Phase I to Phase II, course activities were aligned with moving students through a clearly delineated, step-wise learning experience. Although a small data set ($n = 7$), student feedback in Phase II supports the need for critical reflection previously outlined (Andrade, 2000; Clayton, 2009; Isaacson & Stacy, 2009), not only for documentation, but also to enhance motivation and engagement in the learning process.

One student's reflection regarding the use of rubrics in Phase II stated, "...creativity in teaching starts with the ability to teach in unexpected or unlikely situations. Teaching is not a matter of the quantity of the content, but the quality of learning. Although at first I disliked the tasks and found them cumbersome, as the semester progressed, these tools helped me assess my quality of learning in a way that had not been previously given to me. I find myself now thinking—what proportion of the task did I really complete? Am I comfortable and prepared? What did I learn?" This reflection exemplifies the concept of an engaged pedagogy and a shift in student perspective. Both engagement and perspective shifts are goals of applied learning and critical reflection (Clayton, 2009). As further evidence of this shift in perspective, anonymous sharing of student responses fostered discussion and greater willingness of student participation as observed by increased discussion in the classroom and peer-to-peer interactions in Phase II. Students rated their comfort level greater when the task was associated with the knowledge or comprehension levels than when the activity required analysis, synthesis, or evaluation. These reflections also raised interesting data regarding specific tactile sensations. The most difficult sensory perception to teach is temperature sensitivity. This perception is confounded when the ambient temperature is near freezing, such as that found in an unheated stable during the winter months. Development of standardized models aided in teaching this sense, although more work on developing reliable models is necessitated. Application of affective rubrics in other fields may aid in further elucidating the issue of student motivation.

FUTURE DIRECTIONS AND CONCLUSIONS

As an unexpected result, when techniques were demonstrated students focused more on trying to mimic exact movements, instead of reflecting on their own perceptions. When techniques were not dem-

onstrated, students developed their own approach to the task. The authors are currently investigating demonstration of a skill as compared to written or verbal explanation of skills, in relation to the learning and assessment process. This research direction builds on previous research (Meek et al., 2005) in combination with the questions regarding assessment found in this study. As a model for distance learning (either online or video conferencing), previously unpublished data regarding student perception of PowerPoint presentations was investigated in a small group of students ($n = 14$). For the test course, the content was presented solely through verbal explanation and writing on a white board. All students had previously been in equine studies classes which were taught using primarily PowerPoint lectures. Two questions were asked on a voluntary survey to determine student preference of delivery method: 1) I preferred that the professor wrote on the dry-erase board for teaching the course content; 2) I would have preferred that the professor had prepared all PowerPoint presentations for teaching the course content. Students evaluated these questions using a five-point scale from "strongly agree" to "strongly disagree". Student preference of dry-erase board was 100% "strongly agree" or "agree". Interestingly, only a total of 33% of students "agree" with the use of PowerPoint presentations for teaching content, without any "strongly agree" answers. The next step was to discern why students preferred the use of the dry-erase board. During an informal discussion, a main theme emerged. Students preferred the hand-written material because the course pace was slower and discussion more interactive than when using PowerPoint or other technology. This feedback conflicts with use of digital video technology in biology as an assessment of student-teacher interaction (Tan & Towndrow, 2009) and use of music recording software to motivate beginner musicians (Char, 2009). In equine studies, there is an increased pressure to be competitive with online programs such as business or health care administration. The experiential learning aspect of equine studies and other agricultural fields is what draws students to these programs (Lohuis et al., 1999; Meek & Marean, 2006; Reiling et al., 2003). In consideration of student feedback regarding PowerPoint utilization in the traditional classroom and Phase II observations presented, delivery method of applied skills and subsequent cognition of "how-to" perform that skill are not equitable in terms of learning and attitude towards learning. Therefore, the value of assessment tools, such as skills rubrics, combined with method of delivery warrants further investigation in an applied learning model.

Although the overall research objective was to promote standardization of hands-on skills, these data raise several interesting questions regarding applied learning pedagogy. Rubrics aided in student motivation to learn and perform skills when provided early in the learning process;

however, students may only work to a passing level or other level which they feel is acceptable for their personal goals. The assessment rubric assisted students in de-mystifying a novel task in the equine studies field, as documented in the focus group discussions. Tasks should be aligned with well-defined objectives which provide purposeful progression, and have measureable outcomes. Demonstration as compared to description of tasks delineated on an assessment rubric warrants more research. Students expressed motivation for and engagement in the learning process when using affective rubrics for self-assessment.

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Demographic Tipping Point: Cultural Brokering with English Language Learners as Service- Learning for Teacher Candidates and Educators

WENDY L. MCCARTY

University of Nebraska at Kearney

ROSEMARY CERVANTES

Educational Service Unit 10

GERALDINE STIRTZ

University of Nebraska at Kearney

Changes in the demographic composition of the United States relative to the increase in English language learners (ELLs) in newcomer and refugee populations generate the need for cultural brokers, particularly in the ranks of educators and teacher candidates. Applied learning, especially as used in service-learning opportunities in teacher candidate preparation programs, can produce educators with greater cultural understanding and skills in best practices for literacy instruction. Examples of service-learning for this purpose are highlighted, as well as emerging strategies in professional development for educators who work with ELLs and their families.

“America is on its way to becoming a microcosm of the entire world. One out of every ten people is foreign-born. One out of every five school children is foreign-born or had foreign-born parents. We are literally becoming a country made up of every country in the world.” So said

Kenneth Prewitt, former director of the United States Census Bureau in 2000 (Pipher, 2002, p. 55). By the midpoint of this century, our nation will be even more racially and ethnically diverse, according to projections released in August 2008 by the Bureau. Today's minorities currently comprise about one-third of the U.S. population and are expected to become the majority by 2042; the nation is projected to be 54 percent of former minorities by 2050. In 2023, today's minorities will comprise more than half of the U.S. population of children as well. By 2050, children are expected to be 62 percent of former minorities, compared to 44 percent today; thirty-nine percent are projected to be Hispanic, up from 22 percent in 2008. The Hispanic population is projected to nearly triple during 2008-2050, and its percentage of the nation's total population is projected to double, from 15 percent to 30 percent—meaning nearly one in three U.S. residents would be Hispanic (Bernstein & Edwards, 2008).

As a country made up of many countries throughout the world, the United States is facing a demographic tipping point—a cultural learning curve not yet seen in its history. When newcomers and members of the mainstream culture speak different languages, the learning curve is especially steep on both sides. The U.S. Census Bureau reported that in 2000, 4.4 million households encompassing 11.9 million people were linguistically isolated—nearly double that of the previous decade. Linguistic isolation is defined by the Bureau as a home in which no one aged 14 or over speaks English at least “very well” (Shin & Bruno, 2003). Although mainstreamers may assume that newcomers do not want to learn English, many speak multiple languages already and are indeed learning English (Pipher, 2002), even though it takes most English language learners (ELLs) from one to three years to learn social English and five to seven years to learn academic English (Sutton, 1998).

The U.S. Department of Education defines ELLs as national-origin-minority students who have limited English proficiency. ELLs represent one of the fastest growing groups among the school-aged population in this nation as well, increasing by over 169% from the years 1979 to 2003 (Francis, Rivera, Lesaux, Kieffer, & Rivera, 2006). Of those, the number who spoke English with difficulty (i.e., less than “very well”) grew by 124% (Hill & Flynn, 2006). Over 400 different languages are

AUTHOR NOTE: Wendy McCarty, Ed.D., senior lecturer in the Teacher Education Department, College of Education, University of Nebraska at Kearney; Rosemary Cervantes, MA.Ed., Educational Services Unit 10, Kearney, NE; Geraldine Stirtz, M.A.Ed., Director, Office for Service-Learning, University of Nebraska at Kearney. Correspondence concerning this article should be addressed to Wendy L. McCarty, Teacher Education Dept., College of Education, University of Nebraska at Kearney, Kearney, NE 68849; e-mail: mccartywl@unk.edu

spoken in this group; Spanish is most common, spoken by 70% of ELLs (Francis et al., 2006). In fact, ELLs are expected to comprise 30% of school-aged population by 2015 (Hill & Flynn, 2006). This dramatic increase in the number of ELLs attending U.S. schools over the past 25 years has revealed critical learning, language, and acculturation needs of students and families. Who is best positioned in our culture to address these needs? How can it be done?

EDUCATORS AS CULTURAL BROKERS

Cultural brokering is defined as the act of bridging, linking, or mediating between groups or persons of differing cultural backgrounds for the purpose of reducing conflict or producing change (Jezewski, 1990, as cited in National Center for Cultural Competence, 2009). A cultural broker acts as “a go-between, one who advocates on behalf of another individual or group” (National Center for Cultural Competence, 2009, p. 1). Cultural brokers can help to ease people into each other’s cultures by assisting newcomers and members of the mainstream culture to navigate the tensions of finding balance between respect for ethnic traditions and respect for human rights (Pipher, 2002). Cultural brokers also can help ELLs acquire language through meaningful use and interaction in different social settings and for different purposes (Campbell, 2010). Where is the best place to find such cultural brokers? In our schools.

Schools are frontline institutions for acculturation, where children receive the information they need about the world in which they now live; therefore, educators are the most important cultural brokers in our society. Nearly all newcomer and refugee families have tremendous respect for education and educators (Pipher, 2002). They recognize the need to learn the language, and hence the culture, as soon as possible; children want to learn English, learn in school, and fit into their new society (Campbell, 2010). Because language learning is cultural learning, every language reflects the norms, behaviors, and beliefs of a unique culture; therefore, “the learning of a new language also involves the learning of new norms, behaviors, and beliefs” (Campbell, 2010, p. 316). Pipher (2002) also states, “To really become American, refugees must become both bilingual and bicultural” (p. 76). Furthermore, teaching language requires educators to learn the culture of the language: “All language learning is cultural learning” (Heath, 1986, as cited in Campbell, 2010, p. 315).

To be effective cultural brokers, educators must be able to communicate with students and their families. When educators facilitate language learning, they serve as cultural brokers and help students and their families to work through cultural conflict and encourage them to become empowered to have control over their destiny. This facilitation of

language learning occurs most appropriately and effectively by building on what students and families already know. The concepts, language, and strategies that children have already acquired at home, their “funds of knowledge,” are the connecting points upon which to teach new concepts, language, and strategies (Campbell, 2010). Rejection of children’s home language and culture may result in responses that include failure to learn, withdrawal and passivity, and/or power struggles with and resistance to teachers and the school culture (Campbell, 2010). Students’ native language and culture may be treated as inferior, not worthy of being used as tools in the school setting. “In fact, when we do not allow students to build on their existing language, we and they lose a great deal of richness and value, and we perpetuate the myth that non-English languages are not school languages” (Campbell, 2010, p. 320).

The challenge, then, lies in developing educators who are much better prepared than those in previous generations to teach in linguistically and culturally diverse classrooms and to effectively use the funds of knowledge that children and their families bring to the school experience. Of course, classroom teachers or even ELL teachers cannot learn all there is to know about the various cultures in schools. Educators can, however, better interpret the cultures of diverse student populations in their schools through awareness of how much culture affects language acquisition and behavior, insight into their own culture, and discernment not to interpret the behavior of others through the eyes of their own culture (Haynes, 2005). This awareness, insight, and discernment can certainly be developed through professional development with experienced teachers, but initially—and perhaps most importantly—it can be developed through the applied learning experiences of teacher candidates and educators.

CULTURAL BROKERING AS SERVICE-LEARNING

Applied learning emphasizes the relevance of what is being learned to the world outside the classroom, and makes that connection as immediate and transparent as possible so that students can focus on learning and applying the skills and knowledge they need to solve a problem, implement a project, or participate in the work force (Victorian Curriculum and Assessment Authority, 2006). This results in the formation of partnerships and connections with individuals and organizations outside school that provide the necessary out-of-school contexts for students to demonstrate the relevance of their learning. Research indicates that experiential immersion is the best way for students to develop empathy, tolerance, respect, and appreciation for people, languages, and cultures different from their own (Michie, 2003). Noddings (2005) concurs that “social action can and must ‘extend beyond schools walls to the wider world’ where faculty create learning opportunities at an

appropriate developmental level for students that help raise their awareness of social justice by allowing them to experience, to be with the 'other,' for whom we must care" (p. 7).

When teacher education programs structure applied learning experiences that allow teacher candidates to interact with people different from themselves, teacher candidates are empowered to construct their knowledge base about diversity from life experience. The assumption is that these teacher candidates, with a richer background of experiences in culturally diverse settings, will be better prepared to teach culturally diverse students than those teacher candidates who have lived insulated, monocultural lifestyles and who have had limited experiences in culturally diverse settings. Modest, and sometimes dramatic, changes can occur in teachers' attitudes and behaviors regarding diversity (Smith, 1998). Although the role of educating people to be cultural brokers is hardly touched on in the scholarly literature (Michie, 2003), a review of empirical studies concluded that experiences with members of diverse populations are worthwhile for teachers, and positive results can accrue for students and teachers having the contexts and support within which to interpret their experiences (Smith, 1998). Applied learning can provide both the context and the support for both teacher candidates and educators to become cultural brokers.

These applied learning experiences, when structured as service-learning, can help teacher candidates learn about other languages and cultures, to have greater involvement in international affairs, to put their own culture in perspective and see it in a new way, and to simply feel useful and helpful. Pipher (2002) states, "Having a cultural broker can make a tremendous difference in how successfully a new family adapts to America. People come here traumatized, and the trauma doesn't end with arrival. Without guidance and support, it's difficult to survive" (p. 85). Pipher's suggestions for cultural brokering lend themselves well to service-learning applications in teacher preparation courses. She advocates visiting with newcomers and refugees whenever possible, on the streets or in the stores, and especially when seeing someone looking lost or confused. Helping when and where a need is identified is at the heart of service-learning, such as tutoring in after-school programs or for GED and ELL classes and volunteering at agencies that serve immigrants and refugees. Following is one such service-learning opportunity that took place in central Nebraska as the result of a coordinated effort between the University of Nebraska at Kearney (UNK) and Educational Service Unit (ESU) 10 in Kearney, Nebraska.

FLAME: SERVICE-LEARNERS AS CULTURAL BROKERS

The UNK College of Education requires teacher candidates to complete a service-learning experience as a prerequisite for admission into

the teacher education program. Students who enroll in the entry-level course in the professional education course sequence are required to complete their service-learning experience during the semester they take the course; logistics for student placements are coordinated by the director of the Office for Service-Learning in collaboration with the faculty of the course (University of Nebraska at Kearney, 2009).

Teacher candidates were first given the opportunity to put cultural brokering skills to use in a service-learning setting in a program initiated by ESU 10, the local educational resource agency. ESU 10 is a regional education agency that provides supplementary educational services to K-12 school districts in eleven counties covering nearly 12,000 square miles in central Nebraska, serving about 30,000 students and approximately 2,200 teachers (Educational Service Unit 10, 2009). In 1999 the ELL program of ESU 10 secured a multiyear Title VII Development and Implementation Grant from the U.S. Department of Education to develop, adapt, and implement the Project FLAME (Family Literacy: Aprendiendo, Mejorando, Educando) program with eight community sites, involving 663 parents and 910 children 2½ through 12 years of age, 14 teacher education candidates, 26 teachers, 18 paraprofessionals, and 12 school administrators throughout the three year duration of the program. Specific cultural and literacy skills training was provided by the grant to 136 educators within the target communities (ESU 10, 2002). FLAME was the program of choice by the ESU 10 ELL program after an extensive search was conducted on family literacy programs; those with medical models ("something is wrong with you"), military models ("war against illiteracy"), or patronizing tones ("if you were just more like us, you'd be better") were rejected. The "La Familia" philosophy of FLAME respects Hispanic culture; family is the most important social unit, so the program involves the entire family. FLAME utilizes an asset model that builds on the strengths that families and students already bring: their language and their culture, the connecting points upon which new language and cultural knowledge are built. The FLAME project in central Nebraska has helped families provide circumstances and interactions that support literacy skills, whether in Spanish or English, using culturally-relevant practice and all conducted with the tone of respect.

Project FLAME was first designed by Professors Flora Rodriguez-Brown and Timothy Shanahan of the University of Illinois at Chicago (UIC) College of Education in 1989 as part of a request for funding from the U.S. Department of Education. The original purpose of the program was to support parents of preschoolers and primary grade students by providing information and sharing knowledge about ways to provide a home environment rich in literacy learning opportunities for their children. FLAME is based on the belief, supported by research, that parents

can positively affect their children's learning and school achievement by providing a supportive home environment and serving as confident, successful learner models. Additionally, FLAME believes that successful family literacy is sensitive to the social, linguistic, and cultural contexts of the families served. The FLAME curriculum has twelve family literacy sessions that include topics covering book sharing, book selection, using the library, and creating home literacy centers; helping children learn the alphabet, read, write, do homework, and learn songs and games; and helping parents connect to the community through classroom observations, field trips, and collaboration with other parents. The curriculum is not rigidly structured and is intended to be responsive to participants' needs and concerns. Adoption sites are encouraged to revise, expand, and adapt each lesson to parental needs and community context (UIC College of Education, 2003).

In central Nebraska, the curriculum was adapted to put additional emphasis on increasing access to books and literacy materials. Parents were encouraged to attend ESL and GED classes already offered in their own communities, and literacy activities for children replaced baby-sitting. Instead of using graduate-level students as in the original UIC implementation, ESU 10 collaborated with the UNK College of Education to provide service-learning placements in the FLAME program for teacher candidates who assisted with literacy activities for the children and their parents. Service-learners participated in meet-and-greet with the families upon their arrival; children would go to a separate area to work with UNK students who read books to them and followed up with literacy activities such as helping the children write their own stories in a particular pattern. At the same time parents would meet with FLAME-trained educators from the eight community sites in sessions that covered literacy topics mentioned previously. After the literacy activities were completed in both groups, parents were shown what their children had experienced, and then children shared with their parents what they had done. The children read to their parents, and UNK students modeled for parents how to interact with their children appropriately regarding the readings and engaged with family members regarding their children's work. This was followed by social time with food and raffles for literacy materials that were conducted by the children themselves so they had practice reading numbers. Most of the UNK students did not speak Spanish; they had to figure out how to communicate with ELLs and learn not to be afraid to speak to someone different from themselves. Most students also sang and read in Spanish even if they were not Spanish speakers (ESU 10, 1999).

STUDENT IMPACT

A key outcome for these service-learners was letting go of the fear of communicating. They moved from hanging back with their fellow college students, to being given a job to do and doing it. They were able to develop close relationships with the children; older Hispanic children who spoke English for the most part were able to talk to the UNK students and received encouragement to go to college. Service-learners were surprised at how much they enjoyed participating with the families while developing a deeper understanding of La Familia. Excerpts from their service-learning logs follow (ESU 10, 2002):

“One of the most important things that I learned during my service-learning experience was respect for others, no matter how different they are from me. The groups of children that I worked with were all Hispanic and many were from very low-class families. Before this experience I would not have looked at these children and their families with the same empathy I do now...I have learned that I cannot judge people based on appearances.”

“I interacted with them and could actually tell they understood me even though I was speaking English or not speaking at all because people have an unspoken language that everyone can understand. However, I did start to use some of my Spanish that I learned in high school and thought that I had long time forgotten [sic]. They were simple words and phrases but I think it shows that I cared...I was at first a bit hesitant about working with all these people that spoke a different language than me but now I realize that as I continue with my field experience I can make an impact on them and they will definitely make an impact on me.”

“When teaching I need to use more than just my words to teach . . . I am now excited for any opportunity that may arise for me to work with other languages besides English.”

“I love this program. I think it is a fabulous idea to get the parents involved with their children’s education and to help build confidence in the children . . . when I become a teacher I will have a variety of children and cultures and learning about other cultures helps me to understand my students and what method of teaching works best for them.”

“After being placed with this literacy program for a semester, I was able to put forth my Spanish speaking skills into real life situations. What I learned from both the children and parents was beyond what I anticipated. They taught me so much about their language and it was wonderful being able to share with them by means of communication.”

“Trying to communicate in a language other than my native language is difficult and sometimes frustrating, but also very good for

me. I think it helps me to develop more of a cultural sensitivity and to understand the difficulties these families must have here in the United States.”

“I am very thankful for having the opportunity to work with Project FLAME. As a result of FLAME, I have found myself to [be] a more open-minded and knowledgeable person. This program has also motivated me to pursue an endorsement in the ESL [English as a Second Language] area. I have seen how effective this program has been and I hope that I, as a teacher, will be able to help my students as much as FLAME has helped theirs.”

All of the students completing the service-learning experience, without exception, stated that they experienced a transformation from initial biases about minorities and language learning to greater understanding and acceptance. All students were from small, rural Nebraska towns, with limited exposure to and experience with minority populations of any kind prior to attending UNK. The consistent outcome for these students was an increased sense of confidence as they prepared to teach in classrooms much more diverse than their hometown schools had been for them. Only one student comment reflected a less positive sentiment, that of dislike for some of the necessary “office work” that went into preparing for the sessions. Yet, even this was a valuable learning experience as well: “I now realize how much work planning just one lesson is . . . I will definitely be organized when it comes to me planning and creating my own lessons” (ESU 10, 2002).

Because the service-learning component was not specifically included in the original objectives of the FLAME grant as submitted to the U.S. Department of Education, program evaluations from the UNK service-learners were not a part of the grant reporting process. Therefore, assessment of the service-learning component in future project implementation would certainly benefit from more structured pre-session orientation and post-session debriefing, in addition to the reflective journaling for the UNK service-learning course and the informal preparation and debriefing with ESU 10 staff that took place on the way to and from sessions.

CLIENT IMPACT

Evaluation results of the original piloting of FLAME in Illinois indicate that children of families who participated showed significant gains in cognitive development, pre-literacy and literacy skills, and vocabulary development in both Spanish and English. Results further showed that parents changed their attitudes towards teaching their children and also became more proficient in English, evidenced by significant gains in English proficiency as measured by the Language Assessment Scales

(Rodriguez-Brown, Shanahan, & Wagner, 1999). These claims were validated by the Offices of Bilingual Education, Community Affairs, and Early Childhood of the Illinois State Board of Education, which allowed FLAME to qualify for a dissemination grant from the U.S. Department of Education in order to carry the program nationally as a family literacy adoption model. In 1996, the U.S. Department of Education awarded Project FLAME a five-year Academic Excellence Grant to export the program to train over fifty adoption sites, including the one in central Nebraska (Zygouris-Coe & Smith, 2001).

In Nebraska, the ESU 10 FLAME program mirrored these results; 80% of parents who attended FLAME classes increased the number of home literacy activities with their children and improved their children's access to reading and writing materials as evidenced by self-reports. On an evaluation scale asking parents to rate the degree to which the program accomplished its objectives, the composite score across all sites was ninety out of 100 points (ESU 10, 2002). Although the parents previously felt they were not able to help their children because they could not speak English, now they realized they could help them in Spanish through the transfer of Spanish skills to English in vocabulary, content, and concept development. Additionally, parents participated more in school activities, attended school events more often, and served as representatives of other parents (Bransford, 2002). Following are excerpts from parent evaluations of the ESU 10 FLAME program (ESU 10, 2002) [translated from Spanish to English]:

"It is nice to know that there is someone interested in the Hispanic community, and especially who supports and is interested in our children."

"I like the way that you support our children's education and also the way that you have the children working in school activities and the way that teachers treat us when we are together, and the talks that you give us on how to help our children to read better."

"I learn very many different things so that I can help my daughters with their homework."

"It is a very important help for our children's education. Thank you."

"*Me gustaria que este programa continuara mas anos*" – "I would like this program to continue for more years" was the sentiment consistently expressed by parents who completed program evaluations in the final year, and it was the only concern they raised. In several instances, parents also expressed a desire to continue sessions during the summer and for longer hours "*para aprender mas para ayudar a nuestros hijos*" – "so that we can learn more and help our children." Participating families reported a stronger sense of connection to the communities that

were now their homes and expressed a desire to help to secure future program funding so that their children could continue to benefit. Without exception, their remarks focused on helping their children first (ESU 10, 2002).

Additionally, the Nebraska FLAME program provided scholarships for teacher candidates, paraprofessionals, and educators to pursue ESL teaching endorsements; sixty-nine scholarships were awarded during the 3-year project period. The program was recognized as an outstanding educational program by the Foundation for Educational Funding and the Nebraska Association of Student Financial Aid Administrators in April 2002 (ESU 10, 2002).

POST-FLAME IMPACT

Though the Project FLAME grant concluded in 2002, it served as a catalyst for UNK teacher candidates to seek cultural brokering opportunities with ELLs in subsequent years, and for UNK teacher education faculty to use those opportunities as service-learning experiences for the teacher education program. Project FLAME utilized about 10% of the total number of service-learners from the UNK teacher education program, which averages approximately 150 students per semester. Now the percentage of service-learners participating in cultural brokering-related activity with ELLs, including language and literacy development, has grown to nearly half. In central Nebraska communities where the Hispanic ELL population is significant (20% in Grand Island, Nebraska, for example), and in the same communities where Project FLAME had been conducted, cultural brokering opportunities in service-learning for teacher candidates has taken place in public school outreach centers and cultural welcome centers. Activities have included serving meals for the Salvation Army; sorting, stocking, and distributing food pantry items; participating in coat drives; reading to children and participating in poverty simulations during National Homeless Month; serving needy families through the Christmas drives during the month of December; packing backpacks on Friday mornings for weekend food for children in need; teaching and assisting with citizenship classes; facilitating a moms' group in learning life skills; providing help and advice for families regarding applying to higher education; assisting with the 2010 census and encouraging citizens to vote.

Unfortunately, the number of teacher candidates seeking an actual ESL endorsement plummeted to zero by 2003; the waning of scholarship monies at the end of the ESU 10 grant was a contributing factor. But according to Dr. Glenn Tracy, lead instructor of the ESL endorsement at UNK, the continuation and expansion of service-learning experiences for teacher candidates has helped the number rebound to a steady ten to

twelve in the last several years, and there were thirteen enrolled in the program at the end of the 2008-2009 school year (personal communication, July 9, 2009). Of the sixty majors available to the nearly three hundred teacher candidates enrolled at UNK, the ESL endorsement now ranks as the fifth most chosen endorsement area (University of Nebraska at Kearney, 2008).

In addition, educators have access to ongoing training in service-learning as pedagogy for their own K-12 and college classrooms in a graduate level course available from the UNK teacher education department and taught by the director of the Office of Service-Learning. Over sixty faculty members from multiple disciplines outside of the teacher education program have participated in training institutes to learn how to incorporate service-learning into their courses. In this way, the notion of cultural brokering with ELL populations is expanding beyond beginning level teacher education students into classrooms and schools throughout central Nebraska.

Concurrent with the growth of cultural brokering service-learning experiences for teacher candidates, Nebraska's own state Department of Education, in collaboration with the North Central Regional Comprehensive Center and the Nebraska Council of School Administrators, embarked on a professional development plan for educators who were facing changes in classroom and school ELL demographics. In 2007 the Nebraska English Language Learner Leadership Institute (NELLLI) was initiated to increase teachers' and administrators' understanding of research-based instructional strategies with ELLs, to increase participants' understanding of the correlation between leadership practices and student achievement, and increase participants' capacity to lead ELL reform efforts in their respective districts and schools. Representative teams of educators and administrators in 26 school districts across the state, as well as one team representing higher education teacher preparation programs, applied to become part of multi-day quarterly training sessions. The teams have taken ELL best practices for language acquisition and cultural brokering strategies back to their districts and provided leadership for ongoing professional development within their own schools. In addition, a design team was formed from the NELLLI training participants to provide ongoing support to teams, and eventually all schools in Nebraska (though web access will make universal access possible) through the development of an online resource center called the Continuous Improvement Process Toolkit, accessible through the Nebraska Department of Education website (Nebraska Department of Education, 2009).

The first task of the NELLLI design team was the creation of a mission and vision statement (NELLLI, 2009):

THE TEAM MISSION:

We will equip all Nebraska schools to effectively meet the educational needs of English Language Learners by creating readily accessible resources through the Continuous Improvement Process Toolkit.

THE TEAM VISION:

All English Language Learners will receive research-based instruction in the English Language and content areas so that they are empowered to progress toward academic mastery and achieve their fullest potential. All students in Nebraska schools will respect language and cultural differences and communicate effectively with each other in English and conversationally in a second language.

All PreK-16 educators will receive ongoing training in exemplary curriculum and instructional strategies that promote social and academic English development and cultural identity development.

The remaining tasks include the completion of ELL training resources that are user-friendly for educators and administrators in a variety of school contexts, and the completion of a book study to be used as a professional development tool in conjunction with the book *Classroom Instruction That Works With English Language Learners*, by Jane Hill and Kathleen Flynn (2006). The NELLLI design team seeks to complete their work on the toolkit by the end of 2009.

Even more recently, the passage of The American Recovery and Reinvestment Act (ARRA) of 2009 has provided new funding for addressing the needs of English language learners: "Our recommendations are focused on ELLs because they represent a large proportion of students at risk of underachievement in states and districts across the country" (Stanford University, 2009). The funding guidance for this act states that parents of ELLs are insufficiently engaged in schools and in educational decision-making, so ARRA Title I funds can be used to improve avenues for engaging parents in their children's education, perhaps resulting in a resurgence of programs such as Project FLAME.

CONCLUSION

Teacher candidates and educators are key cultural brokers within their respective communities, and service-learning opportunities provide a powerful pedagogy through which to develop their knowledge and skills. By embracing cultural diversity and language acquisition best practices, teacher candidates and educators can collaborate to support and empower ELLs and their families to connect with the resources they need to attain success in the mainstream culture and to effectively prepare for becoming the majority culture in the very near future. In doing so, they embrace our moral imperative, as global citizens, to care (Noddings, 2005).

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Missouri Western State University