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# CONCEPTUALIZING, ASSESSING, AND INVESTIGATING ACADEMIC LEARNING IN SERVICE LEARNING

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Faculty, staff, and students at North Carolina State University collaborated to develop an interdisciplinary minor in nonprofit studies that is designed around *threaded service learning*, defined as

the intentional use of service-learning as a vehicle to connect the teaching and learning processes across one or more courses in a developmentally sequenced and progressive fashion, which is designed to increase student learning and critical thinking [as well as quality and intensity of service]. It is a process of learning through reflection on multiple experiences that build cumulatively over time. (Jameson, Clayton, & Bringle, 2008, pp. 8–9)

The design of the minor's service learning component includes use of Bloom's Taxonomy<sup>1</sup> to articulate hierarchically structured learning objectives within five themes, which were identified by the collaborating faculty as the primary challenges facing leaders in the nonprofit sector: (a) aligning mission, methods, and resources; (b) balancing individual interests and the common good; (c) earning and maintaining the public trust; (d) capitalizing on opportunities associated with diversity; and (e) moving beyond charity toward systemic change. Critical reflection prompts within each of these five themes—categories of learning that the

courses in the minor are designed to cultivate in a cumulative fashion—support and challenge students to ever-higher levels of reasoning as they progress through the minor. In the capstone course, critical reflection is intended to support students in integrating multiple service learning experiences they have undertaken in the variety of nonprofit settings and disciplines from earlier courses and in adopting the interdisciplinary perspectives of leaders in the nonprofit sector. Throughout, the critical reflection process is closely integrated with the assessment strategy—both feedback on and grading of student products—which, in turn, provides data for course and program refinement and for investigation of student learning, within and across courses.

The preceding vignette illustrates the thesis of our discussion of assessing and investigating academic learning in service learning: Academic learning takes a variety of forms, different courses may target different types and levels of learning, and if the pedagogy is to produce the desired learning then both instructional and assessment practices must be designed in a way that is consistent with and aligned with the desired learning outcomes. Precise conceptualization of different types and levels of academic learning is central to research investigating these outcomes and the processes that generate them.

Academic learning is widely understood (chapter 1.1) to be one of at least three interrelated categories of learning that define service learning—the others being civic learning (the topic of chapter 2.3) and personal growth (the topic of chapter 2.4). This breadth and the potential integration of these categories of learning are among the defining elements of the pedagogy. Further, service learning raises the possibility—if not the expectation—of unanticipated and unique student learning outcomes within each category. The pedagogy thus challenges practitioner-scholars to consider the extent and nature of their responsibility to (a) support students in achieving and articulating individualized as well as common learning outcomes in multiple categories and (b) develop approaches to assessing and investigating the full range of these student learning outcomes and the associated learning processes.

When we focus on academic learning in particular, service learning presents students with opportunities to see examples of academic material emerge in community experiences. Service learning students should recognize and perhaps use academic concepts and theories in their service; in other words, the pedagogy invites them to think at the level of application. For

many instructors and curriculum designers, such as those involved in the minor described in the opening vignette, a key reason to use service learning is that its integration of disciplinary content and community-based experience makes it particularly well suited to support and challenge students to achieve higher levels of academic learning and to develop critical thinking capacities. Some instructors may be interested in using the pedagogy to nurture students' abilities to co-create academic (and other) learning goals and to develop identities and skills as producers of knowledge.

Academic learning in service learning, then, encompasses various types and levels of learning outcomes. In some cases it may be appropriate to document and measure basic levels of learning (e.g., gateway courses), whereas in others it may be important to assess higher levels of learning (e.g., intensive first-year seminars, capstones, graduate courses); levels of critical thinking might be assessed as well in either or both of these types of cases. Although some approaches to assessment—such as applying rubrics to reflection products—are well suited for assessing any level of learning, others (including some approaches to multiple-choice tests) may lend themselves more readily to assessing basic rather than higher level learning outcomes. Using an assessment mechanism that is not sensitive to or appropriate for the level(s) of desired learning or attempting to assess learning that the pedagogy has not been designed to generate limits the ability of students to improve their reasoning processes, instructors to enhance courses, and scholars to build a knowledge base on service learning.

The next section presents a conceptual framework for articulating academic learning outcomes, distilled from a set of related theoretical perspectives that speak to the nature of experiential learning and of cognitive processes more generally. This is followed by a critical examination of past research questions, methods, and instruments through the lens of this framework and by practical recommendations for implementation of service learning and assessment of resultant academic learning. Academic learning is treated as a discrete, albeit multifaceted, category of learning outcomes throughout most of the chapter. In the section on recommendations for future research the question of integration with other categories of learning is revisited.

### **Theoretical Perspectives and a Conceptual Model**

Because service learning is a form of experiential education, any discussion of the theoretical bases for its learning potential typically begins with Dewey

(1997/1933). Dewey's educational philosophy was a reaction to the dominant educational strategy of his time: the rote memorization of facts that were identified as significant entirely by the instructor. In *How We Think*, Dewey (1997/1933) explores the role of disciplined, evidence-based inquiry that draws heavily on experience in moving beyond conventional wisdom, and he frames reflection as a process of coming to understand the meaning, sources, and consequences of knowledge. Calling attention to the importance of engaging with dissonance, or perplexity, in the learning process, Dewey suggests that when confronted with an unexpected experience, individuals are required to stop and examine—reflect on—their current beliefs in deciding what to do next. Service learning provides such an opportunity for students to face new, possibly dissonant, experiences that can cause them to see persons, places, policies, and problems in new and more complex ways. It invites thinking that, as Dewey advocated, involves more than basic knowledge and indeed requires, as well as fosters, higher levels of cognitive activity.

Schön (1983) similarly posits that all practitioners, regardless of field or level of experience, should see themselves as active learners, continually taking in new information and integrating it with previous understanding. Rather than assuming that we must always learn theory and concepts before attempting to use them in practice, he suggests that much of our most important learning is achieved through reflection-in-action, in which existing knowledge is used to solve problems in practice and to continually and deliberately test and adapt theories and concepts in new situations. This conceptualization of learning is consistent with goals of higher education in that students are expected to integrate what they learn in general education courses with their academic majors, minors, and elective course work and are encouraged to become aware of their own learning processes as they move across learning environments—sometimes as beginning learners and sometimes as expert learners, sometimes learning inductively and sometimes deductively. Especially because these outcomes rarely unfold in a predictably linear fashion, students can perhaps best achieve them if they learn to reflect continually on new concepts and to find and actively create interconnections among various theories, conceptual frameworks, learning processes, and experiences. A compartmentalized curriculum runs the risk of providing very few intentional opportunities for students to develop these capacities, whereas a design like that of the minor described in the opening vignette, which includes intentional sequencing of courses that are linked through

cumulative design of a core pedagogy, may support them in learning how to learn in these ways.

Bloom's Taxonomy of the Cognitive Domain (Bloom, 1956; hereafter referred to as Bloom's Taxonomy), which undergirds the threaded service learning design in that minor, includes lower levels of reasoning that involve basic knowledge comprehension; midlevel application of knowledge; and the higher levels of analysis, synthesis, and evaluation. Bloom's Taxonomy suggests that an academic concept must be identified and explained before it can be recognized or used in practice (application) and that comparing and contrasting (analysis) one representation of it with another is an important precursor to achieving more nuanced understandings of it (synthesis) or evaluating its theoretical or practical adequacy. Reasoning, then, includes increasingly more complex, higher level cognitive tasks involving the creation of new understandings and the use of evidence to make and support judgments. Bradley (1997), Ash and Clayton (2009a, 2009b), Ash, Clayton, and Atkinson (2005), and Jameson et al. (2008) are among those who call for design of service learning based on hierarchically expressed, Bloom-based academic (and other) learning objectives.

Yet another way to conceptualize academic learning is to frame it as thinking from the perspective of a discipline. There is an important distinction between basic subject matter learning—for example, focusing on names, dates, and places in a history course—and thinking like a scholar in or practitioner of the discipline—for example, viewing recorded history as the product of multiple and often contradictory interpretations of the past. Boix Mansilla and Gardner (2008) propose four competencies of disciplinary thinking: (a) having an essential knowledge base, (b) understanding how the discipline helps make sense of the world and solve problems, (c) understanding relevant methods of inquiry, and (d) using disciplinary forms of communication (e.g., lab reports, museum exhibits, films). Thinking from the perspective of one or more disciplines invites and enables students to examine sources of information critically, integrate new information, see the world through the lens of multiple—sometimes interconnected, other times discrete—frameworks, and consider what the various disciplines that they encounter do and do not have in common.

Running through each of these perspectives on learning and thinking is the importance of critical thinking. According to the Foundation for Critical Thinking (Paul, 1993), "Critical thinking is a systematic way to form and shape one's thinking. . . . It is thought that is disciplined, comprehensive, based on intellectual standards, and as a result, well-reasoned" (p. 20). Like

Dewey, Paul (1993) points to the shortcomings of instruction focused only on basic knowledge and skills and calls for an approach to education that helps students learn the characteristics of high-quality thinking and develop the ability to assess their own and others' reasoning accordingly. Paul and Elder's (2006) universal standards of critical thinking—clarity, accuracy, precision, relevance, depth, breadth, logic, significance, and fairness—create a shared language around the characteristics of high-quality reasoning and serve as specific criteria with which thinking can be assessed, both formatively (i.e., in giving students feedback) and summatively (i.e., in grading). Regardless of the type or level of reasoning in question, these standards are key to its quality.

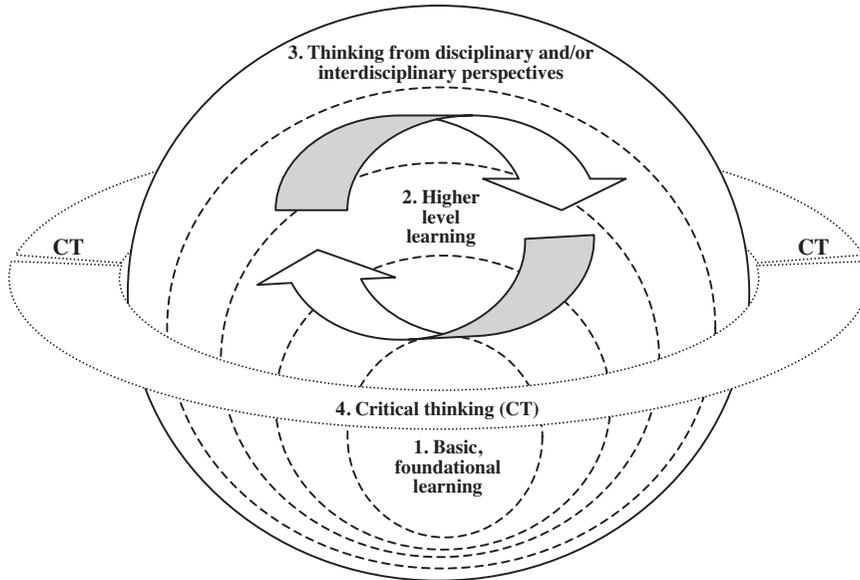
Taken together, these perspectives on experiential learning and on the nature of thinking provide significant guidance in designing for as well as assessing and investigating academic learning, including in the context of service learning. To support the precise conceptualization of academic learning required for undertaking high-quality teaching, assessment, and research, the following typology is proposed:

1. Basic, foundational learning (e.g., of facts, theories, formulas) and skills
2. Higher level learning associated with, for example, evaluation of knowledge and skills
3. Thinking from disciplinary and/or interdisciplinary perspectives
4. Critical thinking

Domains 1 and 2 include discipline-specific knowledge and skills as well as discipline- and profession-transcendent competencies (e.g., writing and speaking, information literacy, research). Domain 3 refers to the ability to adopt the underlying perspectives, paradigms, processes, and methods of inquiry of one or more disciplines, which can in turn enable an interdisciplinary perspective (Donald, 2002). Domain 4 includes the intellectual skills associated with high-quality, self-aware thinking (e.g., conceptual clarity, logical reasoning, the ability to interpret information from multiple perspectives, representing others' ideas with integrity).

These four domains of academic learning and the relationship between them can be conceptualized as an interconnected and dynamic set of nested circles (see Figure 2.2.1). The inner circles represent basic, foundational learning and are nested inside the midlevel circles, which indicate higher

**FIGURE 2.2.1**  
**Conceptual Framework for Typology of Academic Learning Outcomes**



level learning. The midlevel circles are, in turn, nested inside the outer circles, which represent thinking from disciplinary and/or interdisciplinary perspectives. The broken lines suggest the fluidity of the demarcations between and the interconnected relationships among these domains, and the arrows represent the iterative, cyclical nature of the learning process as it encompasses and moves between the domains.

The fourth domain of academic learning illustrated here is critical thinking. Whereas some scholars (e.g., Donald, 2002) include critical thinking under the umbrella of higher order reasoning, this conceptual framework posits that the three domains of academic learning are encircled and, indeed, held together by critical thinking and that critical thinking can and, in fact, should occur within all three of the other domains. Paul and Elder’s (2006) standards of critical thinking (i.e., clarity, accuracy, precision, relevance, depth, breadth, logic, significance, and fairness)—and work on critical reflection in service learning that builds on those standards (e.g., Ash & Clayton, 2009a, 2009b)—suggest that critical thinking is relevant at all levels of academic learning. For example, explaining basic concepts, evaluating

theoretical frameworks, and thinking like a historian all require clarity, accuracy, and logical reasoning; and moving from basic knowledge to higher level evaluation of theory involves conceptual clarity and logic. The simultaneous distinctiveness and pervasiveness of the domain of critical thinking—both its own category and key to the others—is expressed here by the encompassing outer ring.

This typology does not privilege academic outcomes in any particular domain, although it does suggest the hierarchical—in the sense of cumulatively interconnected—nature of learning. Any or all of these four domains of academic learning may be relevant in any given service learning course or course sequence as students encounter various learning goals based on their individual interests and needs as well as the design of the course or curriculum. In the example from the vignette, students in the introductory level nonprofits course are expected to identify, explain, and apply foundational concepts, terms, and theories related to each of the five leadership challenges. In the midlevel courses, learning outcomes include critical evaluation of strategic choices made by nonprofit leaders in terms of how they influence such issues as earning and maintaining the public trust or capitalizing on opportunities associated with diversity. A midlevel course on the history of nonprofits not only invites students to compare and contrast conceptualizations of the common good that have informed the work of nonprofits since the 1800s; it also challenges students to think like historians as they design and implement procedures for archival research and sift through multiple and sometimes contradictory interpretations of events in a nonprofit organization's history. In the minor's capstone, students could be expected to integrate material and experiences from the full range of earlier service learning activities across a variety of courses and disciplines, and critical reflection could be structured correspondingly for integrative reasoning across disciplinary perspectives.

Although encompassing distinct types of learning outcomes, the four domains illustrated in Figure 2.2.1 are interconnected, sometimes in an iterative fashion. Higher level learning, for instance, requires foundational knowledge as a prerequisite, and it sometimes instigates a return to that level for additional basics (e.g., clarification of terminology, nuances between related terms, reexamination of definitions in light of subsequent learning, paradoxes encountered in the application of a concept). As an example of this dynamic from the vignette, when students take the introductory nonprofits course they learn the basic concept of a mission statement and see an example of it in the work of their partner organizations. When they take the

intermediate nonprofit leadership course and encounter an organization that modified its mission as its funders changed, they are expected to develop a higher level ability to analyze the evolution of mission statements over time, which may in turn change their basic understanding of the role and function of a mission statement and signal their need to learn associated foundational concepts such as *mission creep*.

The various theoretical frameworks that underlie the four domains of academic learning expressed in Figure 2.2.1 facilitate a more precise articulation of academic learning outcomes in service learning, which enables intentional design of the pedagogy and meaningful assessment of and research on these outcomes. Using this conceptual model as an analytical lens, in the following section we address the range of ways that academic learning has been defined and assessed; the importance of and challenges associated with aligning desired learning outcomes, instructional design, and assessment strategies; and the challenges of doing this kind of research more generally.

## Review of Previous Research

Eyler and Giles posed the question, “Where’s the learning in service learning?” in their 1999 book. Their central thesis is that service learning has the potential to produce significant learning but that the field needs better methods to facilitate as well as document that learning. This review highlights research on academic outcomes associated with service learning since the publication of that landmark book. Further, this review is limited to studies that use measures of student learning, such as graded written products and exam scores, rather than surveys of student satisfaction or self-reported outcomes.

One recurring question in the field concerns whether service learning improves student learning of course content better than other pedagogies. A common approach to shedding light on this question—illustrated here with three examples—is to compare service learning students’ performance on assignments or exams with that of students in non-service learning courses. Strage (2000) compared 311 students in non-service learning sections of an introductory child development course with 166 students in service learning sections. The service learning students achieved higher scores on the essay portions of all exams (common across the two sets of students) but showed no significant difference on the multiple-choice components, suggesting to the investigator relative enhancement of academic learning primarily in

terms of higher order thinking (domain 2) but not in terms of basic knowledge acquisition (domain 1). In addition to this comparison across pedagogies, Strage considered the extent to which service learning students' academic learning increased through the semester. Examination of journal entries, in which students responded to prompts specifically tied to course content, suggested that the service learning students' ability to integrate experience and course concepts increased as the course progressed; Strage reported that the journal entries became more focused, more detailed, and more accurate in their research- and theory-based analyses of everyday events. From the perspective of the conceptual framework expressed in Figure 2.2.1, this part of the study conceptualized learning in terms of critical thinking (domain 4).

Wurr (2002) compared the writing performance of 35 students in sections of a first-year composition course that included service with a community organization with that of 38 students enrolled in sections of the same course that used traditional methods (e.g., library research). He reported that the essays of the service learning students were judged by independent graders as at least half a letter grade higher than those of non-service learning students. Wurr also reported that analytic measures of the use of rhetorical appeals, logic, coherence, and mechanics were significantly higher, suggesting to him a greater understanding of the complexity of the issues at the heart of the course and the ability to engage in higher order reasoning and critical thinking (domains 3 and 4 of our conceptual framework).

Mpofu (2007) compared the learning outcomes of 65 students who opted for a service learning component of a rehabilitation services course with those of 65 students who took the same course without that experience. He found no significant differences on multiple-choice exams, which tested learning of medical facts, procedures, and outcomes (domain 1); but he did find that students in the service learning group achieved increasingly higher scores than non-service learning students on case study assignments that required them to evaluate the appropriateness of the services being given in the case study based on the patient's disability and to predict the patient's medical prognosis and future quality of life (domains 2, 3, and 4). Unlike their counterparts, the service learning students wrote reflective journals that required the same integrative thinking as the case studies. Thus, although the self-selection rather than randomization of students into the service learning component of the course raises questions about the comparability of the two groups of students in this as in other similarly designed studies, in this study enhanced academic outcomes, especially relative to higher level learning,

were associated with the stronger alignment of pedagogical approaches and desired outcomes in the service learning group.

Several studies—three of which are summarized here—have focused not on comparing service learning and other pedagogies but rather on determining how service learning might best be designed so as to fulfill the claims made for its academic (and other) learning potential. Investigators have, for example, examined changes in the quality of reasoning demonstrated by service learning students throughout a course or curriculum. Ash et al. (2005) defined and assessed academic learning in terms of both critical thinking skills and movement up Bloom's Taxonomy (1956) in students' reasoning about specific, student-identified course concepts. Using two rubrics, they examined written products generated through a critical reflection process that (a) was guided to ensure tight integration of service learning experiences with Bloom-based learning objectives and (b) included the use of Paul and Elder's (2006) critical thinking standards in the feedback and revision process. In reference to the model of academic learning in Figure 2.2.1, this study examined domains 1, 2, and 4 (basic learning, higher level learning, and critical thinking) but did not attend explicitly to learning to think from disciplinary and/or interdisciplinary perspectives. The quality of students' critical thinking as well as their level of reasoning about academic concepts increased across first drafts of reflection products from the beginning to the end of the semester and across multiple drafts of the same reflection product (informed by feedback). Students had a harder time achieving the highest levels of reasoning in the category of academic learning, in contrast with the civic learning and personal growth categories. The authors suggested that asking students to critique and reconstruct academic knowledge for themselves is especially counternormative to more traditional regurgitation of facts and theories. Learning of this type thus requires even more capacity building (e.g., guided practice in critical reflection and support for taking ownership of their own learning and generating new knowledge), which, as the minor in the opening vignette demonstrates, can occur both within courses and across course sequences.

Within the context of that minor, Jameson et al. (2008) investigated the quality of student learning across linked service learning courses by applying Bloom-based rubrics to written reflection products that had been produced through the use of Bloom-based reflection prompts. Unlike the previously described study, they did not integrate critical thinking capacity-building tools or use a critical thinking rubric. Qualified by their small sample size, the investigators concluded that threaded service learning—in which critical

reflection is intentionally designed in each course and across the courses to build cumulatively on itself and to support students in reasoning to ever higher levels—did support progressively more sophisticated understanding of course material, mainly focusing on domains 1 and 2.

McGuire et al. (2009) focused on academic learning in terms of critical thinking alone (domain 4) and engaged in a variety of interventions designed to build their students' critical thinking skills across the semester through critical reflection activities. The investigators gathered two written reflection products from each of six students in their service learning courses, one produced near the beginning of the semester and one produced near the end, and scored them using a critical thinking rubric (Ash & Clayton, 2009a, 2009b). Comparing changes in critical thinking across students who had scored at the bottom (weakest), middle, and top (strongest) of the grade range on a prior assignment, the investigators found greater improvement over time by the weakest and strongest students. Interestingly, they found examples of reflection products that demonstrated high levels of critical thinking but were lacking in substantive connections to the academic content of the course. They thus acknowledged the value that would have been added by integrating the critical thinking standards with Bloom-based learning objectives in formative and summative assessment of academic learning in student reflection (see Ash & Clayton, 2009a, 2009b; Ash et al., 2005).

The preceding review is not comprehensive, it provides examples of attempts to assess and investigate academic learning in service learning in recent years. Although many instructors have identified critical thinking (domain 4 in our conceptual model) as a desired learning outcome, few studies distinguish between basic and higher level academic learning outcomes (domains 1 and 2) or explicitly measure thinking from disciplinary and/or interdisciplinary perspectives (domain 3). The next section provides an overview of several types of measurement approaches and tools that are available to deepen this work.

## Measurement Approaches and Tools

A variety of approaches can be used to measure academic learning outcomes, some better suited than others to one or more of the domains of learning conceptualized in Figure 2.2.1 and some more closely aligned than others with the design of the associated instructional strategies. Indicators of students' academic learning can come from a variety of sources (e.g., the students themselves, individuals collaborating with them in the service learning

process), take a variety of forms (e.g., perceptions, demonstrations), and be gathered in a variety of ways (e.g., asking questions, making observations, evaluating products). The conceptual framework expressed in Figure 2.2.1 provides one typology of the range of ways that the outcomes at stake in the category of academic learning might be conceptualized.

Using grades (e.g., from exams) to investigate academic learning in service learning has the appeal of readily available data (from both service learning and non-service learning students). However, this approach has the significant limitation that standard exam questions may not be well aligned with the full range of levels of learning toward which service learning has been designed in any given instance. As an example, if items on a multiple-choice exam require that students be able to identify or define or recognize examples of course concepts, then that exam is not well suited to measure higher level reasoning, thinking from the perspective of a discipline, or critical thinking. The same exam could provide better insight into such abilities if the items were written differently—perhaps if it provided students with a complex problem to reason through from various theoretical perspectives before selecting which response option best expresses the primary tension points among the theories as they emerge in the case. Thus, researchers need to know, in adapting and evaluating instruments, specifically what kinds of items and questions are included in terms of the types and levels of academic learning they are best suited to measure.

Surveys or questionnaires, often including scales and/or narratives in which students are asked to assess their knowledge or skills or to report on what they have learned (Mahin & Kruggel, 2006; Marshall, Beck, Coghlan, & Kimbro, 2005), can be used to obtain quantitative and qualitative measures of student perceptions of their own learning (or perceptions of the instructor, staff, or community partners). Eyster (2000), however, warns against relying solely on student self-report, which may conflate learning with satisfaction, and calls instead for direct evidence of academic (and other) learning. Combining surveys with other approaches designed to elicit direct evidence of student learning allows for triangulation of data and may provide more rigorous evidence of academic learning in service learning than surveys alone. Direct evidence may come from the assessment of written, oral, or audiovisual products generated, for example, through student reflection or problem-solving activities. The nature of the thinking required of students as they write essays, analyze case studies, resolve problems, or critically reflect on their service learning experiences through the lens of course concepts will depend on the content and structure of the prompts. When

these prompts are aligned with the intended learning outcomes, the resultant products can provide a basis for the assessment of any or all of the domains of academic learning expressed in Figure 2.2.1.

Problem-solving interviews (Eyler & Giles, 1999) or narratives (Batchelder & Root, 1994; Steinke & Fitch, 2003)—which pose a problem and invite students to reason through such issues as potential causes, consequences, solutions, and response strategies—can provide direct, authentic evidence of academic learning in all four domains (as well as other dimensions of intellectual development; see chapter 2.1). Steinke and Fitch (2003) built on Eyler and Giles's (1999) interview protocol and designed a written version that can be more easily and less expensively administered, such as by integrating it into reflection activities. They suggest that the problem scenarios provided need to relate to the content of the course or discipline if they are to provide evidence of students' understanding of academic material. Scenarios should also be novel so as to provide evidence of students' abilities to transfer this knowledge to new situations. Bringle and Steinberg (2010) and Bullock and Clayton (2010) integrate self-report scales with problem-solving narratives. The work of these investigators suggests that a common multidisciplinary problem scenario might be posed to students or that students might be asked individually to identify a relevant problem, but in either case they would then engage with the problem using predetermined prompts designed to evoke and document the types and levels of thinking desired.

Reflection can also be an important source of evidence for documenting and investigating student learning across all four of the domains conceptualized in Figure 2.2.1 through the application of rubrics to student reflection products. Ash and Clayton (2004, 2009a, 2009b) and Ash et al. (2005) offer an approach to assessment that is integrated with learning objectives as well as with the design of critical reflection to generate the desired type or level of learning: the DEAL Model for Critical Reflection. The DEAL Model and its associated rubrics—one grounded in Bloom's Taxonomy (1956) and another in Paul and Elder's (2006) standards of critical thinking—facilitate the use of critical reflection to generate, deepen, and document learning. DEAL is a three-step, prompt-guided model for critical reflection that begins with **D**escription of experiences; moves on to **E**xamination of those experiences in light of specific learning goals and objectives; and concludes with the **A**rticulation of Learning, which involves considering the sources and significance of learning as well as setting related goals for improved future action. The associated rubric for academic, content-based learning (as well as the rubrics for other categories of learning) supports both the design of

prompts in the Examination step and the formative and summative assessment of student reasoning in terms of the levels of Bloom's Taxonomy (1956). The corollary critical thinking table describes 11 standards of critical thinking, adapted from Paul and Elder (2006), and provides questions designed to support students and reviewers of their work in applying the standards. The Bloom-based and critical thinking rubrics provide a basis for assessment and research, either separately or combined. Critical reflection structured with the DEAL Model can be focused on instructor- or student- (or community partner-) identified academic (and other) learning goals and objectives, giving it the flexibility to generate, deepen, and document either highly individualized or widely shared academic learning. Even when parameters for reflection are limited to particular concepts, however, students all reach and articulate their own learning rather than regurgitate their instructor's understanding. As previously described, several studies (Ash et al., 2005; Jameson et al., 2008; McGuire et al., 2009; Molee, Henry, Sessa, & McKinney-Prupis, 2010) have examined the utility of this model at the course or curricular level by having multiple raters examine written products generated by critical reflection processes structured with the DEAL Model, coding them for evidence of Bloom-based levels of academic learning and/or evidence of critical thinking.

In summary, exams, surveys, problem-solving interviews or narratives, critical reflection products, and rubrics are all potentially useful tools for assessing academic learning in service learning. Key to investigating attainment of the desired types and levels of academic learning is intentional design of well aligned pedagogical and assessment strategies. The next section explores implications of the conceptual framework proposed in Figure 2.2.1 for the practice of teaching with service learning and assessing the resultant academic learning.

### Implications for Practice

Whether service learning generates and provides evidence of academic learning outcomes in any or all of the four domains illustrated in Figure 2.2.1 depends in large part on the degree of alignment among desired learning outcomes, pedagogical design, and assessment strategies. Such design and implementation issues are determined by choices made by the full range of participants—students, community members, and instructors—all of whom can be co-constructors of the service learning process (Jameson, Clayton, &

Jaeger, 2011). Although Dewey (1938) was speaking primarily of faculty at the time, his emphasis on the role of educators in experiential learning applies to any and all of the participants in service learning who assume responsibility for its design, implementation, and assessment. As Dewey (1938) writes in *Experience and Education*, it is the “teacher’s business to see that the occasion is taken advantage of” (p. 84).

Eyler and Giles’s (1999) conclusion, “We have discovered that the learning in service learning is in the questions” (p. 207), further refines Dewey’s call for intentional design: The questions posed to guide reflective meaning making (i.e., critical reflection) should support students in achieving and demonstrating the level(s) or domain(s) of academic (and other) learning desired. Thus, a second key implication for practice that follows from the discussion in this chapter is the need to integrate critical reflection into course design and assessment practices to generate, deepen, and document learning (Ash & Clayton, 2009a, 2009b). As discussed, providing students with a context for problem-solving and structured reflection on the connection between academic content and community-engaged activities may be especially conducive to higher level learning outcomes and critical thinking. A design that aligns the focus of and guidance for critical reflection with the assessment instruments and criteria, all in light of the intended learning objectives, can help to capitalize on this potential while also establishing a context for solid research.

Learning through critical reflection in service learning—particularly higher level learning, thinking from disciplinary and/or interdisciplinary perspectives, and critical thinking—requires significant capacity building (e.g., guided practice, feedback, instruction on standards of critical thinking), especially given the counternormative nature of the pedagogy and the associated challenges of learning how to learn in unfamiliar ways (Clayton & Ash, 2004; Howard, 1998). Eyler and Giles (1999), Ash et al. (2005), Grossman (2008), and Steinke and Fitch (2003) have all found that students benefit from guidance, scaffolding, and practice—including peer and/or instructor feedback and opportunities to revise their thinking and writing—in order to improve the quality of their thinking. They also suggest that such enhancement of reasoning is facilitated by helping students become aware of their own metacognitive processes. The intentionally designed integration of critical reflection and assessment can be an important element of such capacity building. In their discussion of the paradigmatic shifts in perspective and practice associated with service learning, Clayton and Ash (2004) and Ash

and Clayton (2009a, 2009b) suggest that learning through critical reflection not only requires but also fosters the development of new ways of learning.

An associated characteristic of well-designed service learning is that it can support students in moving beyond superficial engagement in learning practices. Creating an environment that encourages and facilitates deep approaches to learning (Donald, 2002; Laird, Shoup, Kuh, & Schwarz, 2008) supports students in maximizing any of the desired types and levels of academic learning expressed in Figure 2.2.1. Pedagogical strategies such as problem-based learning, active learning, peer instruction, and critical reflection are examples of methods of instruction especially well suited to fostering deep approaches to learning (Donald, 2002). Deep approaches, which are associated with self-directed and higher order learning, are contrasted with surface approaches, which are linked to memorizing and reproducing knowledge. Service learning, with its emphasis on application, integration, and co-creation, lends itself readily to instructional design that fosters deep approaches to learning.

Designing critical reflection to generate, deepen, and document learning gives rise to another important implication for service learning practitioners, especially instructors: the appropriateness of and tools for grading reflection products. Faculty may struggle to assess reflection products, sometimes inhibited by lack of confidence but as often by a sense—often shared with students—of the inappropriateness of doing so. The products of reflection understood and implemented as critical reflection, rather than as personal and private introspection, can and arguably should be graded. If higher level learning is expected and critical reflection activities are designed accordingly, then resultant products provide the evidence of outcomes on which grades can be based. Grading reflection products as pass-fail or grading students on regurgitation while espousing the use of critical reflection to support higher level learning sends contradictory messages about the value placed on deep approaches to all types and levels of academic learning. The previously discussed rubrics associated with the DEAL Model are examples of tools that are useful not only for cultivating deeper approaches to learning and assessing and investigating student learning but also for grading student work.

Growth in all four domains of academic learning expressed in Figure 2.2.1 may be maximized when service learning is intentionally designed to facilitate learning across course sequences and curricula. As demonstrated by the minor described in the opening vignette, service learning can be designed cumulatively across a curriculum such that no single course bears all the weight of student outcomes in all domains of academic learning. When we

apply our conceptual framework for academic learning, introductory courses in the major might implement service learning targeting domains 1 and 2 and, thus, provide scaffolding for student achievement in domains 2 and 3 in later courses, including capstones. To accomplish these cumulative learning outcomes effectively while also promoting metacognitive development, a focus on critical thinking (domain 4) might well be incorporated within each course. Along these same lines, application might be understood in introductory courses as the ability to recognize or provide examples of course material as it emerges in the community; by contrast, application in capstones or practica could be evidenced through the use of discipline-linked knowledge, skills, and dispositions as professional practitioners in community settings. Thus, a coherent cross-course design of service learning might cumulatively develop disciplinary and professional competencies and provide evidence of student achievement of those competencies (including for program accreditation purposes).

### **Recommendations for Future Research**

The previous section makes clear that effectively designing and implementing service learning so as to achieve and document academic (and other) learning is challenging and warrants careful attention. A key opportunity for practitioners to improve their understanding and implementation of service learning is through the scholarship of teaching and learning (SoTL). SoTL provides a bridge from what is often instructors' initial interest—enhancing student engagement in the course and improving academic learning outcomes—to a role in contributing to the broader pedagogical knowledge base as practitioner-scholars. Explicit use of the theoretical and conceptual frameworks reviewed in this chapter—as well as theory drawn from a range of other fields, such as work on learning styles and peer-assisted learning—moves SoTL into the arena of theory-testing and/or theory-generating research, which explores fundamental questions of why and under what conditions a certain service learning design produces particular academic (and other) learning outcomes. The following sections suggest four potential directions for such research related to the academic outcomes of service learning.

#### ***Operationalizing the Domains of Academic Learning and the Relationships Among Them***

Given the categorization of domains of academic learning expressed in Figure 2.2.1, an important area for future work is to operationalize these

domains through further conceptual and empirical work. This is especially the case for thinking from disciplinary and/or interdisciplinary perspectives, which is the least investigated of the four proposed domains of academic learning, certainly within the service learning community and arguably within higher education more generally. Using Bloom’s Taxonomy (1956) as a guide, a SoTL project might bring together faculty from multiple disciplines to determine what learning objectives associated with thinking from disciplinary and/or interdisciplinary perspectives would look like (see the example in Table 2.2.1). Once such learning objectives are developed, service learning practitioner-scholars could design critical reflection activities and assess resultant products using these objectives as a rubric (perhaps in combination with a rubric for critical thinking) and, thereby, iteratively refine the objectives, prompts, and rubrics. Associated resources (e.g., activities, tutorials, peer mentoring activities) to support students in learning how to learn in domain 4 could also be generated through such a process.

Drawing on Bloom’s Taxonomy (1956) and the hierarchical nature of the levels of learning, Figure 2.2.1 suggests that, with the exception of critical thinking, each domain is contingent on learning at the previous level. This premise needs further empirical evaluation in the context of service learning, and this investigation should be undertaken at the level of courses, programs,

**TABLE 2.2.1**  
**Sample Bloom-Based Learning Objectives for Academic Learning Domain 3**  
**(Thinking From Disciplinary and/or Interdisciplinary Perspectives)**

<i>Identify</i> two or more constructs or theories from the discipline.
<i>Explain</i> those constructs or theories in your own words so that someone not in the discipline could understand them.
<i>Apply</i> these constructs or theories to a given situation—how would each interpret or explain the situation?
<i>Analyze</i> these constructs or theories through comparing and contrasting the explanations each provides in making meaning of the situation—what does one reveal that another obscures, for example?
<i>Synthesize</i> these constructs or theories into a larger, integrated framework, noting the associated tension points.
<i>Evaluate</i> the explanatory power of the larger, integrated framework—what is enhanced and what is still incomplete, for example?

and curricula. With a conceptual foundation and tools to operationalize thinking from the perspective of one or more disciplines established (as discussed in the previous paragraph), researchers might investigate the relationships among thinking in all four domains (e.g., the role of basic foundational learning and critical thinking in higher level learning; the role of basic foundational learning, higher level learning, and critical thinking in enabling thinking from disciplinary and/or interdisciplinary perspectives).

### *Examining Relationships Between Academic and Other Categories of Learning*

Another area for future research pushes the conceptualization of academic learning offered here by considering its relationship with other types of learning: its affective dimensions as well as its role in and connection with civic learning and personal growth. The examination and potential revision of assumptions about knowledge, which often accompany the exposure to novel situations that is characteristic of service learning, are at the heart of transformative learning (Cranton, 2006; Mezirow & Associates, 2000), and the resultant perspective transformation often involves emotional responses associated with dissonance. Felten, Gilchrist, and Darby (2006) note that while emotion has traditionally been discussed by service learning scholars as a trigger for sense making and critical thought, more work should be done that acknowledges and examines the ways in which affect and cognition are integrated and inform each other in the learning process.

Similarly, service learning problematizes the academy's traditional distinctions between content learning and learning about one's self and about communities and citizenship. Understanding the public purposes of a discipline or the social drivers for and consequences of its development and use is a function of learning squarely at the intersection of academic and civic arenas, as is professional ethics. Professional development within the disciplines also implicates learning about one's own evolving skills, attitudes, and values. Various conceptions of civic-mindedness (e.g., Bringle & Steinberg, 2010; Steinberg, Hatcher, & Bringle, 2011) explicitly include knowledge of one or more particular disciplines and an inclination to use that knowledge as a public steward.

One way to investigate the interrelationships among academic learning, civic learning, and personal growth would be to develop Bloom-based learning objectives, critical reflection prompts, and rubrics for the intersections of two of the three categories (i.e., academic and civic learning, academic learning and personal growth, civic learning and personal growth) and for the

intersection of all three categories. Applied to student products, such rubrics could quantify evidence of the extent and quality of connections made among the three learning categories. These scores could then be examined with respect to such potentially moderating variables as student learning styles and such potentially mediating variables as degree of structure in critical reflection prompts or approach to feedback on and revision of student products. These analyses—which, here again, could be undertaken at the course, program, and curricular levels—would provide insights into how the three categories of learning interact and how instructors can improve pedagogical techniques to help students make these connections in the context of academic course work.

### *Examining Relationships Between Approaches to Teaching and Approaches to Learning*

A third area for future research involves the relationship between students' identities and habits as learners and instructional design choices underlying the generation of academic learning outcomes in service learning. As an example, Donald (2002) suggests that while students may come to a course with either surface or deep approaches to learning, instructors can encourage and cultivate either orientation through their course design, including their choice of pedagogies and how they implement them. Research on academic learning in service learning can advance understanding of these relationships between teaching and learning strategies, on the one hand, and students' evolving identities and habits as learners, on the other.

In this context, the tight alignment among outcomes, strategies, and assessment that is needed to both build students' capacities for learning within and across all four domains and provide a foundation for assessing learning outcomes and processes can also establish a somewhat controlled set of circumstances for research, including on such issues as (a) the differential outcomes of deep approaches to teaching on students with surface approaches to learning and students with deep approaches to learning and (b) the ways in which deep approaches to teaching can facilitate growth in students' identities and habits as learners. Determination of students' positioning along a continuum from surface to deep could be triangulated with assessment of academic learning outcomes per the four domains in Figure 2.2.1 to provide a basis for examining patterns of association between characteristics of students as learners and pedagogical design choices. Service learning and other nontraditional pedagogies (e.g., inquiry-guided learning,

problem-based learning) increasingly provide evidence-based alternatives to the dominant teacher-centered strategies of higher education (Buskist & Groccia, 2011). Research can contribute to understanding of the specific ways that these nontraditional pedagogies must be designed in order to cultivate students' identities and habits as learners who are responsible for their own learning and able to integrate their learning with their roles as professionals and citizens.

### *Investigating the Relationships Between Student and Faculty Learning*

A final important and emerging area of research on service learning involves the relationship between students' academic (and other) learning and that of their instructors (McGuire et al., 2009; chapter 3.2) and community partners (Clayton, Bacon, Hess, Moore, & Snow, 2010). Service learning at its best positions students; faculty/staff; and community members as co-learners, co-educators, and co-generators of knowledge (Jameson et al., 2011). Research is needed to enable better understanding of the dynamics and identities associated with these roles and, in turn, to enable deeper enactment of them. Much, if not all, of the theory underlying the conceptual framework for academic learning expressed in Figure 2.2.1 should hold for all learners, regardless of their particular role in the service learning process; many of the same methodologies used with students for generating, assessing, and investigating their learning may prove relevant when applied to faculty and community member learning as well. Research can inform understanding of such issues as the ways that faculty and community partners' learning (e.g., about critical thinking) plays a role in their students' learning (e.g., their development of critical thinking capacities); the similarities and differences in the processes whereby each partner can best engage in learning (e.g., about critical thinking); and the ways that students, faculty, and community partners can best support one another's learning (e.g., about critical thinking). Further, such research can inform the development of partnerships that enable faculty and community members' identities as co-learners. Such research will be most authentically undertaken in the spirit of reciprocity, with students, faculty, and community members working closely together to conceptualize the questions, design and implement the methods, analyze the resultant data, and disseminate their learning.

### **Conclusion**

What Eyer and Giles said in 1999 remains relevant today: "Before we can understand the academic value of service learning programs we need a clear

idea of what learning might be expected from this approach and the extent to which these outcomes are consistent with the goals of higher education” (p. 3). Academic learning is a category of learning for which the pedagogy is well suited, and that category need not be—arguably, should not be—narrowly defined. Although service learning can and should promote student learning of basic content-linked knowledge and skills, perhaps its fullest potential is tapped when it is understood, designed, and implemented so as to also nurture as well higher level learning, thinking from disciplinary and/or interdisciplinary perspectives, and critical thinking. The framework illustrated in Figure 2.2.1 attempts to articulate these various ways of conceptualizing academic learning as well as the connections among them. One goal of this chapter has been to call attention to the particular utility of service learning in facilitating learning beyond basic foundational knowledge and skills and to the potential of curricular level, cumulative design, implementation, and assessment in achieving that learning.

Research in the context of well-designed course- and curricular-level service learning can serve not only to enhance implementation and contribute to the growing knowledge base on nontraditional pedagogies but also to strengthen support for the choice to use the pedagogy and, in turn, its institutionalization within the academy. Further, there are many difficult questions yet to be resolved regarding best practices of service learning as well as of teaching and learning more generally. Rigorous investigation of academic (and other) learning (appropriately conceptualized) and of the processes that generate it will be most meaningful when the pedagogy in question has been well designed to produce and document such learning.

## Note

1. Bloom’s Taxonomy of the Cognitive Domain (Bloom, 1956) explicitly distinguishes “lower” and “higher” levels of reasoning and frames the relationship between the levels in hierarchical terms. It should be noted that multiple revisions of the original taxonomy have been proposed, reordering and adding to the higher levels, and it may be that a newer version is most appropriate in some disciplines or service learning contexts.

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