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Reflection: Linking Service and Learning—Linking Students and Communities

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While research on service-learning has been mixed, there is evidence to suggest that service-learning programs which thoroughly integrate service and academic learning through continuous reflection promote development of the knowledge, skills, and cognitive capacities necessary for students to deal effectively with the complex social issues that challenge citizens. While there is not much research in the service-learning literature that specifically addresses techniques of reflection, evidence from studies of problem-based learning, situated cognition, and cognitive development suggests approaches to reflection that will enhance the power of service-learning in attaining these important goals which facilitate full community participation. This review presents concrete suggestions about this type of program.

Academic service-learning, which combines academic study with community service, has grown dramatically in popularity over the past decade partly because it seems ideally suited to achieving both personal and academic goals for students and broader goals of civic engagement and social justice for communities (Campus Compact, 2000). Honnet and Poulsen (1989) in summarizing practitioner wisdom in *Principles of Good Practice in Combining Service and Learning* noted that "service, combined with learning, adds value to each and transforms both" (p. 1). Also, service-learning addresses many of the concerns of educational reformers (Boyer, 1994) about the lack of "connectedness" in education and the failure to prepare students for lifelong learning and participation. As Eyler and Giles (1999) note, service-learning is specifically designed to counter the isolation of learning from experience and the artificial division of subject matter into disconnected disciplines that lead to what cognitive scientists call the "inert knowledge" problem, or the tendency to acquire knowledge which cannot be accessed and applied in new

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situations. It provides opportunities for students to form bonds with each other, with faculty, and with community members while undertaking worthwhile projects. In service-learning, students are encouraged also to connect their personal goals and values with academic study and to apply what they are learning to real-world situations. It also promotes an interdisciplinary approach to academic study and breaks down barriers between college and community or school and community. While it seems intuitively obvious that connecting academic study to community service would build enthusiasm for civic participation as well as the skills and knowledge necessary for effective citizenship, evidence of these effects has lagged behind practice.

What We Know

The upsurge in service-learning courses in the past decade has led to an increase in both national and local empirical studies of the impact of service-learning on student outcomes (Eyler, Giles, Stenson & Gray, 2001). There has been little study of the impact of service-learning on communities and on institutional goals. Those studies of community impact which have been undertaken have found that community partners generally value the service offered by students (Driscoll, Holland, Gelmon & Kerrigan, 1996; Gray et al., 1998; Nigro & Wortham, 1998). There has been a tendency to count hours of student services provided, but little attempt to evaluate the impact of these programs on more complex outcomes such as social capital building (Western Washington University, 1994). Studies of institutional impact have shown some impact of service on student retention (Astin & Sax, 1998; Roose et al., 1997), and have shown an increase in service-learning opportunities for students (Campus Compact, 2000; Gray et al., 1998).

Reviews of dozens of studies of student impact report mixed results (Alt & Medrich, 1994; Billig, 2000; Eyler et al., 2001). While many studies have shown a positive effect particularly on attitudes related to social responsibility, the impact is generally small and many studies are inconclusive. There is reason to believe that the modest effects may be in part due to the great variability in implementation of programs (Eyler & Giles, 1999). While many academic offerings are called service-learning, the actual experiences of students range from intensive community experiences with close integration into academic study to brief "add on" service activities largely unconnected to classroom discourse. While reflection, "the intentional consideration of experience in light of particular learning objectives" (Hatcher & Bringle, 1997, p. 153), is one of the most important principles of good practice in the literature (Honnet & Poulsen, 1989), there is reason to believe that reflection gets rather short shrift in typical service-learning experiences. Few studies distinguish among the types of service-learning experience or measure the impact of amount and forms of reflective practice. While service-learning theory (Kendall, 1990) promotes the idea that this practice will improve the personal,

social and intellectual characteristics necessary for effective civic engagement, most of this research also fails to clearly define and measure these outcomes. Instead, the emphasis has been on civic attitudes and on self-reports of learning. Only a handful of studies have attempted to measure important outcomes that are intellectual prerequisites to effective citizenship such as knowledge about social issues, skills related to civic participation, or capacity to deal with complex social issues. Yet it is in precisely those areas that service-learning might be expected to add value that is not easily attained through more traditional instruction.

The few attempts to measure quality of service-learning do suggest that quality matters and that the quality that matters most is the amount and type of reflection (Conrad & Hedin, 1980; Eyler & Giles, 1999; Mabry, 1998). What is particularly heartening for advocates of service-learning is that there is also some evidence that service-learning that connects experience with academic study through extensive reflection may contribute to a deeper understanding of social problems and to the cognitive development that makes it possible for students to identify, frame, and resolve the ill structured social problems that we must deal with as engaged citizens in communities (Batchelder & Root, 1994; Boss, 1994; Eyler & Giles, 1999; Eyler & Halteman, 1981). These few studies suggest that a focus on effective reflection is the key to strengthening the power of service-learning. While the empirical service-learning literature itself is a bit thin on the practice and effects of reflection, by drawing on experiential learning theory and on research by cognitive scientists concerned with situated cognition, problem-based inquiry, and adult cognitive development we can identify ways in which reflection can profitably be incorporated into service-learning practice.

Reflective Service-Learning and the Development of the Capacity for Thoughtful Citizenship

Service-learning should contribute to engaged citizenship in a number of ways:

- Student interest is engaged by involvement in authentic service to the community.
- Students develop positive attitudes towards community engagement.
- Students develop a sense of personal efficacy and commitment.
- Students develop deeper understanding of social issues (or other subject matter).
- Students develop lifelong learning and problem solving skills.
- Students develop skills for community action and involvement.
- Students develop post formal reasoning abilities necessary to deal with complex “ill structured” social problems.

The first three of these, engaging student interest, promoting positive attitudes, and building efficacy and motivation, may occur through community service, regardless of the pedagogical techniques used to link it to academic study (Astin & Sax, 1998; Eyler & Giles, 1999; Eyler et al., 2001). But effective citizenship is not only about interest and commitment. Effective citizenship should also include an ability to analyze problems and to engage in action. These capabilities have intellectual components such as knowledge, skills and cognitive development. Experiential learning theorists have long believed that these capacities are developed through the combination of active engagement and reflection, and recent research demonstrates that reflective, compared to non-reflective, service-learning does have an impact on their development (Eyler & Giles, 1999).

Knowledge and deep understanding come through a process of constructing knowledge through assessment of experience. Thought and action cannot be separated. "We cannot think first and act afterwards. From the moment of birth we are immersed in action and can only fitfully guide it by taking thought" (Whitehead, 1994, p. 223). For Dewey (1938), who saw the link between the process of learning and democratic citizenship, educative experiences are those which immerse students in worthwhile activities in the community and that provoke curiosity and commitment to continuous inquiry. More recently Schön (1983, 1995) has stressed the importance of reflective practice, where individuals reflect not just "on practice" but "in practice." Learning involves the construction of knowledge. Tests of that learning include the ability both to apply what is learned and to continue to learn new things. Kolb (1984) described this process of moving from experience to thought and back again as learners construct and organize knowledge. His model begins with concrete experience, moves to reflective observation where learners describe their experience, then to abstract conceptualization where they make sense of these observations and link them to other sources of knowledge, and then, finally, to active experimentation where questions are pursued or theories are tested through more experience. Experiential educators have embraced his model of the continuous learning cycle because it provides intuitive, easily managed scaffolding for planning instruction (Kendall, Duley, Little, Permaul, & Rubin, 1986; Jackson & Cafferella, 1994).

Cognitive scientists concerned with knowledge that can be used in practice have focused attention, also, on this integration of experience with abstract thought. Resnick (1987) has noted that much of what passes for education in the classroom is deeply at odds with how learning occurs in the community and workplace. Engaging students in projects in the community models a learning process that will be useful to them as citizens, and knowledge acquired through repeated involvement in complex situations increases the likelihood that this knowledge will be used (Bransford & Vye, 1989). Students learn more deeply when they have multiple concrete referents for abstract concepts, and they are more likely to develop the capacity for critical thought if they are challenged both by surprising experiences

and by reflective teachers who help them explore these experiences and question their fundamental assumptions about their world (Lynch, 1996; Mezirow, 1991, 1994). When changes in the capacity for problem analysis of students in highly reflective and less reflective service-learning experiences were compared, only students in the highly reflective courses showed significant progress in complexity of analysis, the tendency to frame the problem and solution in systemic ways rather than focusing on individual deficiencies; in increased coherence of a practical action strategy; and in cognitive development (Eyler & Giles, 1999). The changes in cognitive development are particularly important in preparing students for effective citizenship.

While some experiential learning theorists stress the constant interaction between the concrete and the abstract, immediate experience and later application, others see this movement from concrete to abstract as fundamental to a cognitive developmental process that continues well into adulthood. Kolb (1984) stresses the continuous movement back and forth between the concrete and the abstract, but Piaget (1972) introduced the notion that the capacity for abstract thought develops over time through experience with the concrete. More recently, adult learning theorists have developed empirical support for stages of adult cognitive development, breaking the formal operational stage of Piaget into a series of more complex developmental steps. This process has been referred to as post-formal reasoning.

It is not enough to be able to think abstractly; the capacity to deal with complex and often-conflicting information such as that encountered with ill structured problems, requires advanced epistemological understanding (King & Kitchener, 1994; Perry, 1970). The social issues that we face as citizens in our communities are classic ill-structured problems; they are not easy to identify and define, and there are not clear answers about how to resolve them (Voss, Green, Post, & Penner, 1984; Voss & Post, 1988). The capacity to identify, frame, and resolve these issues requires a fairly advanced level of cognitive development. King and Kitchener (1994), who have studied post formal reasoning or advanced adult cognitive development, characterize this capacity as "reflective judgment."

The process of adult cognitive development described by Perry (1970), King and Kitchener (1994), and others proceeds from a rather simple, dualistic vision of the world through the view that information and opinion are relativistic to the capacity to make warranted judgments about complex information and to act in the context of ambiguity. King and Kitchener break this arc from dualism to complexity into seven stages of reflective judgment with the more adequate and complex stages at levels six and seven. In their extensive empirical research with college students, they find that most do not attain a level of reflective judgment that enables them to make reasoned judgments and to sort out conflicting and ambiguous information. The average college graduate reasons at level four in their stage model. In other words, most college students don't achieve the critical thinking abilities to be effective social problem solvers (King, 1992).

Students at the dualistic stages fail to recognize that social problems are ill structured and assume that a "right" answer is evident. They are likely to be disinclined to reflective thought because they assume their role is to receive the "right answer." Relativistic thinkers can recognize that the problems are ill structured without obvious right answers, but have difficulty figuring out how to sort out the conflicting information and conflicting expert views in order to resolve them. They are inclined to dismiss difficult questions as "only a matter of opinion" because they don't have the intellectual tools to weigh alternative points of view. In order for students at these stages of development to engage in reflective discourse, structure must be provided; left to their own devices they are not likely to seriously engage the issues. Only at the highest stages of reflective judgment can individuals identify the ill-structured nature of social problems, frame them, resolve them, and understand the need to continually readdress the issue as conditions change and new information is developed. Since few college students in traditional programs function beyond these mid levels of analysis, it is vital that instructors provide structured reflection to encourage this growth.

As citizens attempting to address social issues, we must ultimately be able to evaluate conflicting information and perspectives and arrive at a decision for action, recognizing that our knowledge and our decision are tentative. We may discover new information or perspectives tomorrow that will cause us to modify the direction taken today, but often we must act today. Service-learning provides the opportunity for students' assumptions about particular social problems and community issues to be challenged through experience. Reflection on these conflicts or surprises is the process by which individuals develop the capacity to understand and resolve complexity; reflection is the mechanism for stimulating cognitive development.

Two studies examining the impact of reflective service-learning on cognitive developmental outcomes have had promising results. Boss (1994) in her study of the impact of community service related to the issues pursued in an ethics class found a positive impact of service-learning and reflection on cognitive moral development. Eyler and Giles (1999) compared highly reflective service-learning with service added to courses with little reflective integration and found that reflective service-learning increased critical thinking performance using measures based on reflective judgment theory.

Planning for Effective Reflection: The Reflection Map

While reflection appears to be critical for attaining important cognitive outcomes of service-learning or other field based programs, we have reason to believe that students are unlikely to be engaged in reflection in their community placements unless intentional efforts are undertaken to make it so. Just adding a service project or placement to a course does not guarantee that students will reflect on

ways that the experience relates to their academic study. Moore (1981, 1999) found that students in work placement in communities were rarely asked to explicitly link their experience with their academic study or to think about its wider implications. Their community activities were often routine and repetitive and contributed little to a broader understanding of the work or the workplace. When pushed, they often could not articulate the purpose of what they were doing or demonstrate how it related to the goals described by teachers for the field placement. Also, students in service placements, especially those done by only part of the class in lieu of other course requirements, report few opportunities to explicitly reflect on the application of their experience to their academic study (Eyler, Giles & Schmiede, 1996). Even when time is taken for reflection, it is often superficial; commonly students share impressions and feelings but have few opportunities to link their experience to subject matter or to have their assumptions challenged. Dewey's (1933, p. 9) notion of reflection as "persistent and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends" is a standard rarely met. Oftentimes, the structured reflection is reserved for a final project or paper rather than being continuously integrated into the course experience (Eyler & Giles, 1999). Also, it is rare for students and community partners to be engaged in truly reciprocal interactions where the nature of the service project is shaped by both involved. Students may not see how their specific efforts fit into some broader community purpose (Sigmon, 1979).

The reflection map in Figure 1 (Eyler, 2001) is a tool for organizing our thinking about the types of reflection activities that are consistent with what we know about how students can acquire and use complex information and progress in their abilities to identify, frame, and resolve ill-structured social problems. Organizing instruction with these steps in mind will help instructors design reflection that truly integrates experience with the academic content of the course. The map helps us

	Before Service	**During Service**	**After Service**
Reflect Alone	Letter to self Goal statement	Reflective journal	Individual paper Film, Artwork
Reflect with Classmates	Explore "hopes and fears" Contrast expert views	List serve discussions Critical incident analysis	Team presentation
Reflect with Community Partners	Create contract Needs assessment	"Lessons learned"—on site debriefing	Presentation to community partner

Fig. 1. Mapping Service-Learning Reflection Activities. From "Creating Your Reflection Map," by J. Eyler, in M. Canada (Ed.), *Service Learning: Practical Advice and Models,* 2001, San Francisco: Jossey Bass. Copyright 2001 by Jossey-Bass. Adapted with permission.

think about reflection in terms of both social context (i.e., with whom the reflection is conducted) and chronology (i.e., before, during and after service).

Reflection Before Community Service or "Preflection"

One of the assumptions of experiential education is that students will be surprised by exposure to situations and information that conflicts with their assumptions about the world and that they will be challenged to explore further. The processes of cognitive development and deeper understanding of issues involve resolving those conflicts through acquiring new information, assessing the validity of conflicting information, and restructuring the schema for organizing understanding. There is, however, much research that indicates that unless these assumptions are surfaced and explicitly addressed in the context of new information and experience, most people will simply hammer new information into old frameworks (Barron et al., 1998). The process of restructuring one's conceptual framework does not necessarily occur automatically. Conflicts between new experiences and old assumptions may not even be visible to the student and thus experience may contribute little to learning. Taking time before beginning the community service assignment to explore assumptions about the community, about the issues to be addressed as part of the course, and to identify gaps in understanding will prepare students to be observant and aware of puzzling questions that arise in the course of their service experience.

It is not difficult to create exercises and assignments to help heighten students' awareness of their assumptions and expectations about issues and the community experience in which they will participate. Individuals can write a letter, to themselves, which identifies what they expect to see and do in their service site and open it at the end of the course. They can note expectations in a journal entry, or create a personal goal statement outlining what they expect to see and hope to learn. Assumptions made explicit can then be tested through experience and study. For example, it is common for students who participate in tutoring programs to have a number of stereotypes about the children they will work with and their families. Surfacing these preconceptions may help students be more observant. This may lead to awareness of experiences that contradict these stereotypes or it may lead to curiosity about why certain puzzling behaviors occur. Students who begin assuming that children failing in school have parents who "don't care" thus may encounter parents desperately struggling to obtain resources for their children and be compelled to explore systemic, as well as personal, failures to provide adequate resources. Students who examine their stereotypes about why people need to make repeated visits to the emergency food pantry may begin to ask larger questions about why members of the community are consistently unable to provide for their families.

Surfacing assumptions before the service experience can also expose students to the conflicts among their peers and among experts about ill-structured problems.

The first step in developing a more complex and adequate personal epistemology is the awareness that even well educated experts may not see problems the same way. It is important to understand that the fact that there are not easy answers is intrinsic to the nature of social problems. Seeing these conflicts prepares students to engage in the questioning that refines their thinking.

In the classroom, students may be presented with alternative viewpoints about the issues they will explore in the field, or with conflicting evidence from experts. They can then share their own perspectives, identify questions that need to be resolved, and create a strategy for finding further information on these conflicts. Pursuit of new information can take place in the library and in the community. The key is to sensitize students to the fact that many of the issues they will explore are ill-structured and that part of their task is to pay attention, figure out what the critical questions are, and refine their understanding of complex community issues. The realization that in their own peer group, students have differing views of the nature of the problem they are studying makes the notion of "ill structured problem" manifest to students.

Reflective activities before community service can be designed to also encourage students to develop the habit of monitoring their own learning (i.e., to engage in continuous reflection both "on practice" and "in practice"; Schön, 1983). While some students will be naturally reflective, sharing insights and raising questions in personal journals or with family or friends, many others will not give much thought to what they are observing (Eyler, Giles & Schmiede, 1996). Goal setting and self-monitoring of learning, including the tendency to raise and seek answers to puzzling questions, is a hallmark of effective learning (Barron et al., 1998). Students who develop these habits of reflection have the tools to get the most out of their current studies and to use for future problem solving in the community. Reflective activities before commencing the community service (i.e., "preflection" which helps students explore expectations, assumptions, and the need to know more before their service experience) helps model this process and launch the process of self monitoring that will be pursued throughout the term.

A tool which has been found to be effective in encouraging self-monitoring of learning is creation of a learning contract where students identify learning goals and the evidence that will be needed to demonstrate their achievement. Auditing these contracts can occur during as well as at the end of the course (Chiang, 1998). Learning contracts can be used to set individual goals and can also be team or class based. A natural way to develop a project with the community is to hammer out a contract that identifies community needs as well as student learning goals.

"Preflection" with community partners adds a further important dimension to the learning process. One of the powerful elements of service-learning as pedagogy is that it is highly motivating. Working in the community, getting to know people actually struggling with important needs and issues, makes those issues real to students and important to resolve. It helps create what cognitive scientists have

called "a sense of agency" or the belief that students are engaged in important work and can make a difference and this sense of agency is associated with better learning (Barron et al., 1998). Placing students in project teams is a "social organization that promotes participation and results in a sense of agency" (Barron et al., 1998, p. 273). When students plan service with community members and clearly see how what they are doing will be genuinely useful, they want to do and know more.

Experiments have also demonstrated that students who are working on projects to meet a clearly articulated client need to have a deeper understanding of the issues addressed. They are more likely to be thoughtful about what they are doing and to be able to focus their learning on important questions they feel a need to answer (Bransford & Schwartz, 1999). Contracting is an element of much problem-based learning that helps students identify what they need to learn in order to accomplish the task at hand. Even where it is not feasible, due to time constraints, for students to fully participate in the process of community needs assessment and project planning, holding meetings with community members at the beginning of the class term to discuss the importance of the project and to learn about the particular community helps to create the motivation and awareness that facilitates more sensitive observation and committed involvement by students. Projects that stretch over several semesters can include contracting and planning with an early group and activities picked up and carried out by later groups. The kinds of sustained and thoughtful partnerships thus created also enhance the quality of the service that students can perform for the community, moving students from largely interchangeable forms of menial tasks to engagement in more complex projects needed by the organization.

Reflection During Service

Reflection before the service project or placement begins prepares students to be observant, thoughtful, and prepared to notice ways in which their experience does not match their expectations. It is also a first step in preparing them to monitor their own learning process. The key to effective reflection during service is continuity; observations need to be continually processed, challenged, and connected with other information. As one student noted:

> An important part of any experience is that you question continually. It is easy when you go in once or twice to go the first time with pre-conceived ideas and look for information that affirms those ideas . . . if you don't reflect on it, it's easy to just keep going there for the same assumptions and operate on those. (Eyler & Giles, 1999, p. 146)

Experiential learning rests on a cyclic process of action and reflection on that action. Understanding is continuously modified with more experience, information, and thought.

Mezirow (1994), who has written about the role of reflection and critical reflection in developing cognitive structures or schema for understanding the world, notes that

> We resist learning anything that does not comfortably meet our meaning structures, but we have a strong urgent need to understand the meaning of our experiences so that, given the limitations of our meaning structures, we strive toward viewpoints which are more functional, discriminating and integrative of our experience (p. 223).

The continuous reflection prevents students from resisting the implications of the discrepancies between their assumptions and their current frames of reference. It helps them develop more adequate meaning structures in a variety of ways. Mezirow divides these meaning structures into two categories: meaning schemes which are made up of our specific concepts, beliefs, and judgments, and meaning perspectives which include our basic assumptions about the way the world works as well as our personal epistemology or way of judging information. Students with limited experiences generally have simplistic meaning schemes. While change in meaning schemes is easily produced through reflective service-learning, transformation of meaning perspective is rare (Eyler & Giles, 1999). Mezirow (1994) notes that reflection on the content of experiences (e.g., how those in the AIDS outreach program have to struggle to obtain medical services, or difficulties the homeless have in securing employment without a stable address and a place to make themselves presentable for interviews) leads people to make changes in their meaning schemes. They may refine or elaborate current beliefs, learn new information, or transform the way they organize their thinking about the issues.

This may result in a more complex and adequate view of a social problem. Indeed, there is evidence that students who engage in highly reflective service-learning (Eyler & Giles, 1999) and in experiences closely tied to the issues under study in the classroom (Batchelder & Root, 1994) do exhibit more complex understanding of issues, including more elaborate causal analysis. Before students reach a stage of readiness for critical reflection that leads to transformation of meaning perspectives, they may need considerable experience and reflective practice that helps them develop this type of deeper understanding of situations and issues.

Once students are heavily immersed in the complexities of a social issue, they may find that they are in a position where their old beliefs are simply not adequate for dealing with the issues. For example, the student who worked at the food pantry giving out emergency food boxes and was finally driven to ask how the same families needing assistance month after month could be deemed an emergency situation has arrived at the point where she is ready for critical reflection on fundamental principles about how society is organized to provide for its members. In a highly reflective service-learning class some students will go beyond more elaborate understanding of the issues, to transformation of the way they think about society. This process is also instrumental in increasing the ability to deal with

ill-structured problems through better-developed epistemological capacity (Eyler & Giles, 1999). Critical reflection leads to cognitive development.

Kolb's (1984) model can be used to organize reflection activities to help students attain improved understanding and critical capacity. The process can be as simple as using the cycle to structure class discussion and it is easy enough that students can take turns facilitating the process. During discussions students can describe their experience and then try to make sense of it in the context of what they are also learning in the classroom. Their newfound explanations can be tested through further observation or experimentation or conflicts may yield questions that require further traditional academic research. When experiences are processed through this cycle continuously, students are challenged to explore the issues more deeply than when consideration and integration of experience wait for a final summary paper or presentation.

We have found that the need for continuous reflection during the course of the term may place considerable pressure on the instructor, attempting to accomplish a variety of goals with limited resources in a short period of time. Ideally service-learning is conducted using a problem-based learning approach where the class is organized around a single community project and the subject matter learning is derived from that project. For example, students learn how to conduct program evaluation by helping a community evaluate a program, or they come to understand a social policy issue as they assist a community agency in writing a grant seeking program support to address that issue. Using this approach, continuous reflection during the course is easy to manage seamlessly. Problem-based learning is intrinsically reflective. But service-learning can enhance, also, more traditional courses. This creates a challenge for the instructor. Project management and reflection about the service experience compete for time with other agendas and this is made even more difficult if only some of the students are engaged in a community service option.

There are a variety of ways to balance the need for continuous reflection with the constraints of time, content coverage, and multiple student assignment options and the middle column of the "map" in Figure 1 can help the instructor think about these options. One approach is to maximize reflection by the student individually, outside class time. An obvious and commonly used technique to accomplish this is use of a journal; the key to making this effective is to structure the journal so that the student pushes beyond mere description to identifying questions to pursue and connections between the course of study and the community experience. This can be done with weekly sets of questions or with more generic probes based on Kolb's (1984) reflection cycle. One popular approach is to ask students to describe their experience ("what?"), discuss what it means ("so what?") and identify next steps ("now what?"). The interpretation of the experience is done in the context of what is being studied in the course as well as other knowledge and experiences that the students bring to the situation. The next steps may involve trying something new out in the service site or investigating questions through further study. If students

have been asked to develop learning contracts at the beginning of their service-learning term, these contracts may be the focus of attention in the journal as they are fulfilled. If students are organized in teams for their service, they might meet together to reflect on their experience and complete a joint-structured journal. Computerized class management programs also allow faculty to set up discussion groups in which students can respond to focus questions or share observations with other students also engaged in service, perhaps in different sites or at different times. It is a variation on the individual journal.

Faculty can also devise methods for incorporating service experiences into the class discourse even when only some students are active in the field. Incidents from the field can help all students in the class explore the implications of what they are learning. Those engaged in service-learning can present descriptions or role plays of incidents they observe as a focal point for class discussion; these examples can be used to illuminate lecture or reading material or to raise questions to be pursued through further study. Students in the field can be teamed with students doing library research to share the results of their respective inquiries. For example a student researching health care policy can hear about difficulties people in the neighborhood AIDS outreach organization are having obtaining medical access. Examples from community service experiences can help prepare students to understand the material being presented in the classroom.

Learning scientists are exploring methods for improving students' ability to learn from didactic materials, as well as their ability to transfer what they learn to new situations. A continuing theme of this work is the need to differentiate knowledge, to become aware of the nuances, and to construct more complex ways of understanding phenomena. Engaging in comparisons of similar, yet distinct, cases and opportunities to engage in a series of related inquiries before material is presented increases readiness to acquire and understand new material that students read or hear in lecture (Schwartz & Bransford, 1998). Examining multiple concrete examples from the community should enhance the ability of students to learn effectively from didactic material presented on these topics. Even where only some students are doing community service, material from their experiences can be shared with the class and used to construct these contrasting case examples with the added power of having someone engaged in the case in class as a resource. Transfer, or the ability to address effectively new problems and issues, is also enhanced by applying knowledge and skills repeatedly in new, rich, and complex contexts (Bransford & Vye, 1989). Applying what is learned in the classroom thoughtfully to community tasks provides experience that should facilitate developing this ability to use what is learned.

An often-neglected opportunity for continuous reflection is on site with the community partners. Many agencies regularly meet to reflect on the work they do and to plan for further activity. When students can participate in this naturally occurring reflection, they have the benefit of seeing reflective practice modeled. Just

as students learn to work in community contexts by working in the community, so too can they learn to build reflection into their work by reflecting in the natural community setting with their partners. For example, students can meet with teachers working with the students they tutor, or participate in debriefings of events or programs in the agency. When this process is not naturally occurring or available as a matter of course at the site, then arrangements can be made for students to sit down during the course of the service with partners to discuss progress and issues. The goal is lifelong learning and participation; modeling this process in the community helps connect students to this broader context.

Reflection at the End of the Service-Learning Project

Where students have been encouraged in monitoring their own learning and have participated in continuous reflection, then the post-service reflection can be particularly satisfying for everyone involved. It is an opportunity to consolidate learning, to examine where one has traveled in understanding over the course of the term, and to identify questions and issues yet unresolved. Good preparation for service and, then, subsequent continuous reflection make these final activities virtually plan themselves. In fact, engaged, interested students may simply be allowed to devise their own final integrative projects, allowing a good deal of diversity in how they will share what they have learned.

Individual students can demonstrate their learning through reflective papers in which they trace the arc of their learning, through conventional papers in which they integrate service and library research, and through presentations or seminars where they share their conclusions with peers. When students share their conclusions in class with others also engaged in exploring these issues in the community, the conversations that ensue are often more compelling than typical student presentations elicit. There are also a variety of possible final reflective projects that can be conducted by teams of students and which range from formal presentations, linking theories studied with their experiences to debates or mock legislative hearings to videos or other artistic expression.

One of the most challenging and exhilarating final projects calls upon students to present their work to community partners. Again, by incorporating the community into final reflective activities, engagement with the community is strengthened on multiple levels. The final product or a final presentation to the partners produces tremendous pressure to do a professional job. Students take great satisfaction in being able to fend questions or explain the work they have done to a real audience deeply involved in their work.

Perhaps even more important than sharing their learning with peers and community is taking time to think about next steps. Having sorted out and puzzled through their experience during the course of the semester and having viewed it through the lens of theories studied in their classrooms, students are in a position

to concentrate more fully on the "now what" stage of the Kolb reflective cycle. Students can be challenged to construct action plans for how they will use the insights and experiences gained during the course of their service-learning in future community involvement. We know that the ability to use problem-solving skills in new situations is enhanced by practicing them in multiple settings with explicit reflection on how they can be transferred. Also, we have evidence that action planning increases the likelihood that new skills will be practiced in the future (Bransford & Vye, 1989).

Conclusion

There has not been much longitudinal research to determine if the predicted increases in community engagement will occur in adults who have experienced service-learning in school and college, but the few relevant studies that have been done are encouraging. College students who perform volunteer service are more likely to participate in their communities after graduation (Astin, Sax & Avalos, 1999). Many of the outcomes associated with reflective service-learning such as a sense of personal efficacy and other elements of personal and social commitment have been linked to increased community involvement (Niemi & Associates, 1974). Students who are engaged in service-learning can indicate specific future service in which they plan to engage (Giles & Eyler, 1994). One study of high school students conducted before service-learning was a recognized pedagogy is particularly heartening. Students whose government class involved them in projects for their community were found years later to be more actively involved in community activities than their peers who had had other non-service-oriented sections of the course (Beane, Turner, Jones, & Lipka, 1981). Past behavior is a good predictor of future behavior and community connections established during schooling may well lead to community action after graduation.

While additional research is needed, particularly on the types of reflective practice that will enhance learning, cognitive development, and future engagement in the community, there is already enough information to point to the kinds of service-learning models that should be supported within institutions and through national policy. Service-learning is labor intensive work for faculty members; it is critical that adequate resources be provided if ample opportunities for students to experience reflective high quality programs are to occur (Eyler & Giles, 1999). Teachers and professors need technical assistance to develop skills at design and implementation of reflective programs; they need support in the form of community liaisons or service-learning centers to help create and sustain community relationships; they need practical resources, including transportation for projects. College professors need to find professional reward in commitment to students, community, and high quality instruction.

Attaining the most important goals of service-learning is dependent on high quality programs that incorporate effective reflection. The growing knowledge base in the learning sciences supports the importance of carefully planning reflection to incorporate activities before, during, and after community service. Both the education of students and their future contributions to their communities will be enhanced by effective and reflective service-learning experience. And the field will be enhanced by further support for research more tightly focused on assessing alternative approaches to reflective instruction.

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