Research Supports the Fourth “R” — Reflection
Nate Schultz and Marybeth Neal, NYLC

Research corroborates what practitioners know — that reflection is an essential ingredient in facilitating high-quality learning for students. A recent survey conducted by Harris Interactive and NYLC found that participants in service programs that included reflection experienced healthier school climates, more success in school, and increased self-efficacy (Markow et al., 2006).

— **Reflection influenced school climate:** Forty-three percent of service participants who reflected on their service reported having a teacher they could go to if they were in trouble or needed help (vs. 22 percent of those who did not reflect on their service). In addition, more of those who reflected on their service reported overall satisfaction with their school life (47 percent vs. 31 percent).

— **Reflection was correlated with academic success:** Twenty percent of those who reflected on their service reported having completed college (vs. 13 percent of those who participated in service that lacked reflection).

— **Respondents who participated in service with reflection reported a greater sense of efficacy:** Eighty-three percent reported that their service experience had improved their ability to help others (vs. 68 percent of those who did not reflect on their service experiences).

These findings corroborate other research that suggests reflection needs to be continuous, connected, challenging, and contextualized (Eyler, Giles, & Schmiede, 1996, p. 16; Pritchard & Whitehead, 2004, p. 107).

**Reflection activities should:**
— occur throughout the service experience to establish connections between information learned and actions taken.
— question participants’ assumptions about their service and, when necessary, draw “attention to ideas, feelings and actions that may be disturbing, troubling or shocking” (Pritchard & Whitehead, 2004, p. 108).

Reflection thus can help young people move beyond preconceived notions, cultivate empathy, and even revise their course of action so that they can better serve their communities.
REFLECTION: Evidence from the Research
Shelley H. Billig and Linda Fredericks, RMC Research Corporation, 2008

What Are Challenging Reflection Activities?
Reflection is defined by Toole and Toole (1995) as “the use of creative and critical thinking skills to help prepare for, succeed in, and learn from the service experience, and to examine the larger picture and context in which the service occurs” (p. 100). Reflection in service-learning should occur at all phases of the project, not just at the end. It should include a variety of types of activities, including verbal, written, and artistic, so that youth can demonstrate their learning, understanding, or changes in attitude in multiple ways. Reflection should show the connection between previous knowledge and newly acquired knowledge, often allowing young people to examine and correct their preconceptions and assumptions. Reflection also allows youth to see their place in the larger community or societal context.

Challenging reflection typically means that the activities go beyond the basics of summary of events and examination of feelings to prompting more advanced thinking skills such as analysis, problem solving, and critique. Cognitive challenge is typically defined as presenting the learner with a problem or situation that the learner cannot tackle with his/her existing cognitive structure. In many of the studies on cognitive challenge, researchers also describe prompts that engage students in metacognition, defined as thinking about thinking or being conscious of one’s own thinking and reasoning processes. Challenge within the service-learning context also involves relating experiences to various social and civic issues in order to understand connections to public policy and civic life.

Application to Service-Learning
• High-quality reflection occurs before, during, and after the service is performed. In preservice reflection, the emphasis is on students examining their beliefs and assumptions about issues and service populations. When students are engaged in service activities, the reflection practice focuses on sharing with and learning from peers, receiving feedback from teachers, asking questions, and solving problems. Post-service reflection can allow students to revisit their initial attitudes and assumptions and compare them to their current beliefs. Students can also evaluate project outcomes, for themselves and the service recipients, and discuss how they will apply what they have learned (Toole & Toole, 1995).

• Reflection activities that are designed well and implemented thoughtfully allow students to acquire a deeper understanding of the world around them and of how they can make positive contributions to society (RMC Research, 2003). Other benefits of reflection tied to the cultivation of meaning include the facilitation of greater caring, the development of closer relationships with others, a breaking down of barriers and building of bonds with others from different backgrounds, and a heightened sense of connection and belonging (Andersen, 1998).

• Billig, Root, and Jesse (2005) found that service-learning approaches that featured cognitively challenging activities and reflection were associated with students being more likely to value school, feel more efficacious, engage in school and enjoy subject matters, and acquire more civic knowledge and more positive civic dispositions.

• Root and Billig (2008) showed that teachers with the strongest student outcomes in their study wove cognitive challenges into the service activities by asking students to learn more about issues, investigate potential causes and solutions, weigh alternatives, resolve conflicts among themselves, consider how to persuade others, and manage complex tasks. For one teacher, an additional aspect of cognitive challenge involved the service activity’s ability to stimulate students to question their assumptions about society. For other teachers, challenge was also inherent in the ability of projects to prompt students to realize the complexity of social problems.
• Eyler and Giles (1999) showed that reflection helped students gain a deeper understanding of what they learned and helped them to apply learning to real-life situations and develop increased problem-solving skills. They also demonstrated that reflection was a good predictor of openness to new ideas, the ability to see issues in a new way, and the ability to analyze issues systematically.

• Bringle and Hatcher (1999) described how the raw material of the experience is transformed into more cohesive learning “when critical reflective thought creates new meaning and leads to growth and the ability to take informed action” (p. 180).

• A study of the Generator Schools (Blyth, Saito, & Berkas, 1997) revealed that the amount of reflection was related to service-learning outcomes in complex ways. Youth who did not engage in reflection typically had less socially responsible attitudes than those who did. Those who reflected the most were more engaged in school.

• Conrad and Hedin (1987) demonstrated that students who engaged in more reflection activities were more likely to become aware of their own changes of attitudes and behaviors; to develop a sense of community; and to develop more of an internal locus of control, feeling that they have better control over their own lives.

• Waterman (1993), in a study comparing students in Philadelphia who participated in service-learning with those who did not, found that students who engaged in a process that featured more reflection had stronger self-confidence and social responsibility outcomes than those who did not.

• Leming (2001) concluded that reflection allowed youth to form identity in community service settings, particularly with regard to feeling a sense of purpose, social relatedness, and moral-political awareness.

• Eyler, Giles, and Schmiede (1996) demonstrated that students engaged in critical reflection were more likely than their peers to apply what they learned to understanding and solving social problems.

• Reflection helps students to both understand the links to the curriculum and explore what they have learned through thinking and writing and talking (Andersen, 1998).

**Educational Research Supporting This Concept**

• Yates (1995) studied 119 students in a parochial high school who worked in a soup kitchen. Surveys, observations, and essays revealed that engagement in the service experience was a prerequisite for “transcendent reflection”; that is, reflection that helps students to place their experiences within a larger social-historical context. “Once students had included reflective evaluations, feeling good about helping and learning life details about specific individuals predicted making higher level evaluations” (p. 72). Students who had higher-level reflections in their final essays were more likely to report that they intended to volunteer throughout their lives.

• In 1999, Perry and Albright noted that reflection involves five steps: (1) remembering and thinking about what was experienced, (2) relating current to prior experience, (3) representing the experience in some way, (4) reaching further into the experience by extending thinking and analyzing at higher cognitive levels, and (5) revising the experience by examining its value.

• Marzano, Pickering, and Pollock (2001) found that the strongest effect sizes for school improvement occurred when teachers integrated strategies, such as teaching similarities and differences, perspective taking, and nonlinguistic representation, as a regular part of classroom instruction. Many of these strategies are associated with cognitive challenge and represent a type of reflection activity.
• In an AERA publication (2006) titled, “Do the Math: Cognitive Demand Makes a Difference,” unlisted authors discussed the need to increase the cognitive demand within K-12 education. They summarized the 1999 Trends in International Mathematics and Science Study that examined the ways in which mathematics instruction varied among the seven countries. The analysis showed that the key difference between the United States, the lowest performer, and higher performing nations was the way in which teachers and students worked on problems. Higher performing countries did not have a higher percentage of cognitively demanding tasks, but rather teachers placed higher cognitive demands on students as they were solving the problems. In practice, this meant that teachers did not reduce tasks into procedural exercises emphasizing computational skills, but rather encouraged students to focus on concepts and connections between and among concepts to engage in better problem solving. Rather than simply applying a set of rules, students learned to reason and solve problems by analyzing problem characteristics, justifying their responses, and explaining the rationale for solving a problem in a particular way. The study concluded that teachers should design high-demand tasks and then keep students engaged in high-level thinking and reasoning. They should encourage students to use multiple problem-solving strategies, represent the problem in multiple ways, and explain and justify their work. “High cognitive demands or thinking processes involved in solving a task can include the use of general procedures connected to underlying concepts and reasoning, complex thinking, and reasoning strategies” (p. 3).

• Jacobson and collaborators (n.d.) reviewed the literature on learning about complex systems and described six design principles for creating learning environments and tools. The first is to connect with the learner’s passions, interests, or experiences so they become more motivated to learn and receptive to instruction. Second, students should experience complex systems phenomena through systematic observations and experiments. Experiences allow students to “iteratively explore questions and hypotheses” (p. 4) in either real life or virtual settings. Third, core concepts should be made explicit. Fourth, students should engage in collaboration, discussion, and reflection. Discussions can be peer-to-peer or peer-to-expert and allow for individuals to articulate or reify their ideas and develop metacognitive scaffolds to understand the experience and connect it with other experiences they may have had. The fifth principle is to engage students in constructing theories, models, or experiments. This may be accomplished by having students generate questions and hypotheses and testing them with others or through experimentation. Finally, students should be encouraged to deepen their understandings and explorations so they engage in trajectories of learning. “Complex systems concepts learned in one class ... should form a conceptual toolkit that students will be able to use and to enhance in subsequent classes” (p. 6).

• In a PowerPoint presentation summarizing the results of one 1998 national survey, Ravitz and Becker (n.d.) discussed teaching for understanding as having a focus on challenging objectives and tasks. Challenging tasks ask students to articulate their reasoning, revise their work, and engage in peer discourse, group decision making, and metacognition. They wrote that these types of tasks are made feasible by allowing students access to resources, such as information and thinking tools, by teachers modeling the learning process, by giving students freedom and responsibility, and by assigning meaningful tasks that are consistent with learning goals. To make tasks meaningful, they should be “contextually rich” projects that have real-world applications, authenticity, depth, and embedded skill learning. Students’ thinking and feelings should be taken into account by considering students’ prior beliefs and interests and by giving students choices. Classrooms should be reorganized to give students opportunities to be in cooperative work groups, to take leadership roles, and to take initiative. Their research showed that projects of this nature are most likely to be implemented in schools serving children from middle to high income families where student abilities are rated as middle to high. These types of projects were much more frequent in elementary and middle schools than in high schools. Cognitive challenge most often occurs in the form of problem-solving activities. Students either worked on problems for which there was no obvious method or solution, designed their own problems to solve, or decided how they would address complex problems.
• In a study in the United Kingdom that utilized an experimental design, Adey, Robertson, and Venville (2002) found that intentionally promoting cognitive challenge led to significantly higher gains on measures of cognitive development and that cognitive development was accelerated when students worked in groups.

• Researchers affiliated with the Center for Research on Education, Diversity & Excellence (CREDE, 2002) noted: “working with a cognitively challenging curriculum requires careful leveling of tasks so that the students are motivated to stretch” (p. 1). According to CREDE (2002), indicators of challenging activities include assuring students see the big picture as a basis for understanding its parts, designing instructional tasks that advance student understanding and help students build on previous successes, and providing direct feedback about how well students are performing relative to challenging standards.

References


