

LEARNING THROUGH COMMUNITY SERVICE: An Interview with Kate McPherson

Kate McPherson is the director of Project Service Leadership in Vancouver, Washington, a nonprofit agency that provides consulting and technical assistance to Northwest schools that are developing service-learning programs.

Q: How can school-to-work and service-learning initiatives play a role in enhancing math and science instruction?

McPherson: Today there are abundant recommendations to teachers to enhance science and math instruction with more problem-based or project-based learning—emphasizing that the ability to retain, and to be motivated to learn and to develop application skills and problem-solving skills, is enhanced by one's direct engagement in hands-on projects. These strategies suggest, for example, methods to improve the teaching of math and science for girls and women, specifically activities that are hands-on, cooperative, and relevant to world problems.

Service learning incorporates these characteristics by involving students in action-based learning in their communities, and therefore can be seen as a major strategy to improve the climate for female students in math and science education. Service learning fosters relationships among people and connects the core content and math and science concepts to real-life situations. Both school to work and service learning can help provide a context in which science and math instruction can be applied to the world of work or to issues that communities face.

Q: In what ways are school to work and service learning similar, and what distinguishes them from each other?

McPherson: School to work and service learning are based on the premise that contextual learning is a much more sound pedagogy for instruction. Both make an effort to bridge the classroom to the community. The primary location for school to work is in business or corporate settings, while service learning activities occur in nonprofit or human service settings. The boundaries between the two areas often merge and blend. Service learning is one of the best ways to prepare youth with knowledge of the job while providing methods to use those skills in ways that serve the larger community and prepare students for roles as citizens who contrib-



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ute. School to work emphasizes the ways that business can provide students with skills and experiences that prepare them for the world of work. In school to work, students are more frequently the recipients who act as employees or workers. In service learning, participants are more often viewed as resources and citizens. Both school to work and service learning are needed, and neither one is better than the other in approach.

Students' learning that is taught in the school is enhanced because it extends learning beyond the classroom, helping to foster the development of a sense of caring for others.

Q: Traditionally, schools have been rather removed from the community. How can service learning help dissolve barriers to form collaborative partners?

McPherson: Service learning may take place either in a community-focused classroom project or through actual immersion in the community. Service learning involves students in private sector, nonprofit, and public service agencies to identify social needs in the community and to discover ways they can play a contributing role. As teachers become informed of the needs and structure of the nonprofit and private sector organizations, new bridges can be built.

Teachers begin to increase their awareness of the many ways that young people can serve, such as writing newsletters for nonprofit agencies, conducting research for local business to help them make wiser fiscal decisions, applying math skills to determine the aspects of building

a public park structure, or using scientific strategies to help restore salmon habitats in streams that have been impacted by human encroachment. The linkages occur when both students and educators begin to gain a broader base of understanding, and the community begins to perceive that youth are not simply recipients of assistance, but, instead, valuable providers of much-needed services. As students become directly involved in service learning, they identify possible careers in environmental technologies, science, and math, while encountering the numerous ways they can help their community.

Q: How can service learning strengthen students' math and science skills in preparation for community involvement and service?

McPherson: The most effective services are done by students who have enough knowledge to make better decisions and who understand the scope of the work they've undertaken. Students in Seneca, Oregon, learn about principles of physics, chemistry, and biology when they test stream water flow, the changes in depth, and the impact of grazing on the chemical balance and pH levels. By doing so, they gain deeper understanding of math as they tabulate and graph results and prepare reports for local agencies and policymakers. Teachers who are interested in strengthening science instruction can provide students with the time to discuss important community issues prior, during, and after projects. Students can then explore resources and exchanges with local naturalists and scientists to outline their basic environmental project, and to better understand how to directly apply science concepts.

Q: How do you make sure that teachers don't neglect important math and science skills and concepts as they focus on projects that take students out of the classroom for extended amounts of time?

McPherson: Teachers do need to link the service-learning project to the learning objectives of their curriculum. This may mean that the science concepts are less separated from math, biology, and chemistry. If project-based learning becomes the focus or at least plays a strong role in the math and science curriculum, it may

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Combining Math and Science Learning with Community Service

Classroom teacher Bill Knudsen's Troutdale Elementary School students are engaged in a two-pronged service-learning program: (1) to increase young students' awareness of environmental issues, and (2) to foster their relationships with people in their community who have special needs. The weekly community service component takes place during a recess and some class time, while the environmental projects take place after school and during weekends. A strictly voluntary program, all school students are invited to participate in Troutdale, Oregon, community projects, some that continue throughout the summer.

Once a week, K-5 students visit profoundly retarded residents of an Easter Seal community-based group home as part of the human service component of the program. The environmental part of the program has included planting native trees and shrubs by a creek bed, naturalizing a detention basin, marking storm drains, raising and releasing over 1,000 fish into local streams, and hauling over six tons of rocks to a riverbed. These activities involve students in diverse mathe-

tics calculations and scientific investigations to strategize methods and activities to achieve outcomes. "I would like to see this kind of activity incorporated as a natural part of the curriculum, as natural as math," Knudsen commented. "I'm a little impatient with how slowly things change, but the new Oregon restructuring process will almost demand that teachers look outside the classroom for curriculum materials, which leads naturally to service learning."

This year students observed that builders in their community were not following city codes that protect the natural environment, and wrote a letter to the city council expressing their concerns. When retainers were placed around storm drains during construction, they realized that their letter had had an effect. "That was a little lesson in civics that the kids taught the teachers. I'm not sure that we would have thought to write that letter," Knudsen noted. Later, when students noticed that the streambed where they conduct research and provide environmental support was silted in by runoff created again by developers, four second-graders testi-

fied at the Troutdale City Council on behalf of a stricter erosion control ordinance. The ordinance passed because, according to the city's consultant, "The kids said it all."

While Knudsen and his colleagues observe obvious benefits to all students involved in applying their math, science, and language arts skills to community projects, they note that what is not always so obvious is that there are numerous issues just waiting to be addressed in every community. Knudsen says, "We are really missing out if we do not vigorously look for ways of getting kids out there in the community, so that the community can see that there are some pretty nice kids who care and who can make a difference." By applying emerging science and math skills to environmental and human issues, students foster lifelong learning experiences and relationships both with the members of their community and with their environment.

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mean that there's a more integrated cross-content instruction for math and science skills. Environmental studies force a blending of the content areas, and require that all science areas be taught in concert. As teachers look at the key concepts of problem solving, the capacity to collect and analyze data, and scientific method and research, they can be effectively woven into a real-life project.

Service learning does not replace other teaching approaches, it is simply a mechanism that enriches and adds an important dimension that allows students to apply classroom knowledge as they connect to their community.

Q: How do schools find time to implement this service learning?

McPherson: Many schools that are approaching project-based and service learning realize that 55-minute blocks at the secondary schools do not accommodate and support this kind of learning, and are instead creating at least 100-minute time blocks. This gives students an opportunity to engage in a project, prepare, return to examine, and to have less fragmented in-

formation. It requires that math and science work together and be less isolated than they have been traditionally. Many schools find that service learning can be done right in the classroom, such as students assisting the community by conducting research on a problem that have

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How is the role of the teacher changed by this approach to learning?

McPherson: In service learning, the teacher becomes a facilitator of learning, and brings in community agencies and organizations for training. Often the training teachers received in college in preparation for becoming a science teacher does not adequately prepare them for active involvement in community projects. Instead, teachers must depend upon outside professionals who have community-based professional experience to assist them in their preparation and synthesis of service-learning projects. At the same time, teachers as well as community leadership must see students as resources with the skills and vision to be helpful.

For further service-learning information, contact Kate McPherson by phone at (206) 576-5070 or by fax at (206) 576-5068.

Americorps: National Service Up and Running

Across the country, over 20,000 Americorps volunteers are helping improve communities by tutoring children, rehabilitating streams and salmon runs, building housing for the homeless, and enhancing safety initiatives, among many other useful community service projects. Citizens 17 years and older from all walks of life are encouraged to participate. In the tradition of Civil Conservation Corps, Americorps participants are directing their talents to help others. In return for their year of service, they receive a living stipend of \$4,700, a postservice education award that may be applied to further education and training.

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