

The Learning Network

A Newsletter for Districts and High Schools Engaged in Redesign Work

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CESNW Service Learning Network



The Network was created during the 2006-2007 school year and funded in part by a three-year grant from The Corporation for National and Community Service.

The Network's goals include:

- Implementing service learning across *all* of the core disciplines,
- Developing formal partnerships with community groups to address *real* community needs, and
- Increasing the academic engagement of *all* students.

The eight schools below comprise the Network:

- Centennial 7-12 Learning Center, Portland, OR
- Clover Park High School, Lakewood, WA
- Commodore Options K-12 School, Bainbridge Island, WA
- Nathan Hale High School, Seattle, WA
- Friday Harbor High School, Friday Harbor, WA
- Heritage High School, Vancouver, WA
- Riverdale High School, Portland, OR
- Windward High School, Ferndale, WA

The Possibilities and Promise of Service Learning

By Rick Lear, Director

Thirty years ago, I was completing my first year as the director of an alternative program that drew 160-200 students to it each year from a high school of about 1800 students. By any standard, the school was a gem, and working there for a decade has been, to date, the job of a lifetime for me.

We served the “druggies and dropouts,” a large proportion of the community’s National Merit semi-finalists, and students who simply wanted the freedom to pursue more interesting learning opportunities in our university community.

While we always struggled to get each student’s individual program just right, our most vexing schoolwide problem was community service—a yearly expectation for each student. We got better when we replaced “community service” with “service learning,” and shifted our focus to student learning, and less so to the “forced altruism” that to some seemed to describe our expectations.

But we never got really good about service learning at the Alternative Program. For some students, service learning had a profound impact, quite literally changing their lives, affecting their deeply held values as well as their aspirations. For others, service learning did just what we had hoped it would, and broadened their view of what it meant to be a citizen. For most students, though, service learning was an item to be checked off on their annual yearly plan.

It never occurred to us that we could make service learning central

to our school, an integral part of our academic courses. We continued to see service learning as an additional thing kids did as part of being a student in our school. And mostly, we saw it as an individual thing kids did—an obligation to be fulfilled, often more at their individual initiative than ours. As a school, we blew a golden opportunity.

The eight schools that comprise the CESNW Service Learning Network have an opportunity to do better. Some of them have long histories of service learning engagement, while others are relatively new at it. Some are large schools, others are quite small, some are urban, some suburban, some rural.

In this issue, you will read about some of their efforts, some polished, some works in progress.

What these schools hold in common is the commitment to integrate service learning into their core curriculum. They have made a commitment to move service learning away from the margins of their students’ learning, to work to ensure that each student has recurring opportunities to learn in direct, hands-on ways that also provide a service to their communities.

That commitment is important in multiple ways. Well-designed service learning activities

help students learn important things within a discipline. And that learning happens in a more integrated, authentic way, more often by using rather than simply displaying knowledge.

Good service learning allows teachers and schools to broaden

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More Than Community Service

“Service learning is a *philosophy* which embraces young people as community resources and assets; a *community development model* which takes on real issues and community needs; and a *teaching and learning method* which values active learning, critical thinking, and problem solving by integrating service into academic courses that meet state academic standards.”

*National Youth Leadership Council
www.nylc.org*

From the Cafeteria to the Gas Tank

By Mary Beth Lambert, Director, CESNW Service Learning Network

Randy Brosius, Associate Principal, Heritage High School

Mary Thompson, Teacher and Service Learning Grant Coordinator, Heritage High School

It's lunchtime at Heritage High School and the teachers are in the staff room discussing their upcoming weekend. Gwen Thompson, the school's advanced placement chemistry and physics teacher, expresses frustration that she can only buy fuel for her new biodiesel car in Portland, Oregon, which is a good ten miles from Vancouver, Washington where the high school is located.

Jim Neiman, Heritage's Careers in Technical Education (CTE) teacher, who also happens to be an owner of a biodiesel truck, looks up with interest. "I wonder what we might be able to produce from the leftover cooking oil that comes from the school cafeteria deep fryer?" he asks.

The teachers spend the weekend researching biodiesel production on the Internet and Gwen experiments with producing a few mini-batches in her school lab during her prep time. Two weeks later, Gwen, the lab scientist, and Jim, the small engines expert, hatched the beginning of a service learning project. Now in its second year, this project has ignited students' initiative, curiosity, and creativity, as well as break-the-mold collaboration among students, teachers, departments, and the community.

With grant support from the CESNW Service Learning Network, Heritage teachers Gwen and Jim were able to spend time together last year planning and collaborating on their project, determining the learning goals and standards that would be met, and researching equipment requirements for a processor that would convert the cafeteria grease into fuel. The Evergreen School District also pitched in to help with start-up costs and new equipment.

When the teachers brought the idea to their students (who

included a mix from AP chemistry, career and tech small engines class, and science club), the response was overwhelmingly enthusiastic. It was a chance to help the environment *and* learn something new. "We wanted to get kids excited about applying their learning towards an issue, like reducing our carbon footprint, that has the potential to change their world," says Jim.

Senior Jennifer Harkin says the opportunity to raise awareness amongst her peers about the environmental impact was what initially drew her to the project last year. "We are recycling what we have and already use in the cafeteria," she explains.

But before the waste material from the cafeteria could be recycled, there was a lot of experimentation, as the students and their teachers worked together to create a safe and successful process for converting the waste grease into usable fuel. The process involved heating and circulating the kitchen grease at 120°F in a student-modified hot water heater and adding a methanol reactant and lye catalyst. As the esterification reaction proceeded, biodiesel was produced, along with glycerin, a by-product, which the students used to create grease-cutting soap now used in the school's science and small gas engines labs.

As part of the biodiesel project, students routinely apply concepts pulled directly from the pages of a typical chemistry textbook, including acid-based properties, solute and solvent interactions, concentration and stoichiometric calculations, equilibrium, and reaction rates.

In addition to the increased relevance, the authentic nature of service learning naturally demands increased rigor and accountability. This can be seen in the heightened responsibility of students working in the biodiesel lab. "They must document what is done during the cleaning and refinement process so that when they leave the lab and a new student comes in, she knows where to pick up," Jim says.

Student and Teacher Collaborations

The opportunity for students to work together is a hallmark of Heritage's biodiesel service learning project. Students work collaboratively in small groups to monitor the processing of the oil and the production and refine-



Heritage High School students and teacher Jim Neiman are all smiles after presenting their biodiesel service learning project at the national service learning conference.

ment of the biodiesel. But what has folks inside and outside the school talking is the collaboration of their teachers *across departments*. “I’ve never seen this type of crossover collaboration between adults from different departments,” remarks Mark Ross, Director of Secondary Education for the Evergreen School District. “For example, Gwen is an AP science teacher and Jim is a CTE teacher. As a result, you have a tremendous amount of student collaboration.”

“The AP kids understand the science, but need help understanding the application to a biodiesel engine. The CTE students understand small gas engines, but need help recognizing some of the math and science concepts,” says Mark.

His district colleague, Susan Dixon, Director of Career and Technical Education, adds “We see this project as a model of what other collaborations between different disciplines, students, and teachers might look like in our district. We hope it will serve as a catalyst for thinking about new ways of working together and learning, which is deeper and more authentic.”

Year Two Innovations with Algae

As word spread last fall about the biodiesel service learning project, more Heritage students became involved and provided input by researching project and production improvements and innovations. In three biology classes, science students developed research projects related to biodiesel or alternative fuels. Some investigated algae production as a more efficient alternative to corn, soy, or other stock oil-producing crops. Through their research, the students also learned about the political, social, and ethical ramifications of utilizing a food source for fuel, whether as biodiesel or ethanol, rather than feeding the hungry.

Under the supervision of their biology teacher, Heritage students are developing ways to produce algae. They are growing the algae in garbage bags and 80-gallon drums, which when pressed, will produce a significantly higher percentage of oil than any other crop. The students hope to turn the algae-produced oil into biodiesel in the future. “Students are curious and very resourceful in researching ideas and creating methods to experiment,” says Gwen.

Community Outreach and Connections

Recently, other schools and community groups in the district have contacted Jim and Gwen wanting to know more about their service learning project. The students and their teachers decided that instead of just telling others about their work,

What Students Say...

“This project gives us a unique perspective on the math and science concepts that we are learning in our other classes. It’s more relevant than just reading a text book.”

— Jason Moss, Senior

“In the lab, students are in charge and expected to make sure stuff gets done. We are treated as adults.”

— Sarah Mann, Senior

“Our service learning biodiesel project isn’t just about saving trees and the environment, it’s about working with people in the community.”

— Jennifer Harkin, Senior

they needed to show them. A group of students retro-fitted a trailer to hold a mobile biodiesel lab of sorts, which will include a processor and diesel generator that can be used to demonstrate biodiesel production.

“There is such a strong need to educate our community about alternative fuels. Examining our carbon output is such a big focal point right now, so it’s a good time for the school to be focused on that and for our students to think about how they can share their learning and work with others in their community to raise awareness and implement change,” Jim says.

In addition to sharing their knowledge with others, the teachers and their students are interested in making their biodiesel available to the community. One idea under discussion with district leaders is to create a community co-op. The co-op idea is generating excitement since it would collect fees, which could be re-invested back into the school’s biodiesel program.

Steve Wicklander, General Manager for FuelOnly, a national fuel analysis, testing, and research laboratory, says he wishes a program like this had existed when he was in high school. “The first time I went over to Heritage and met the students, I was just really impressed. I took auto shop as a kid, I did it to get by, and I couldn’t believe the chemistry these kids were doing and what they were learning. Things would have been quite different for me if I had been in a program like this.”

FuelOnly regularly tests Heritage’s biodiesel fuel (providing an in-kind donation of \$1,060 per test) and is interested in partnering with the school to assist with distribution once the co-op is established. FuelOnly has also donated parts, expertise, an air compressor, as well as the trailer being used for the mobile biodiesel lab. Steve, a 25-year veteran in the fluids testing industry, is such a fan of the Heritage biodiesel project that he’s convinced other community partners, such as Imerjent, a nearby company, which manufactures and sells biodiesel production systems, to get involved and donate parts and expertise to the school.

For Heritage High School teachers Jim Neiman and Gwen Thompson, their service learning biodiesel project has enabled them to re-imagine the high school learning experience. “Instead of thinking about classes, we as teachers need to be thinking about the real world experiences that we want our students to have and how we can offer them through projects,” Jim says. “With service learning projects, students can take their own ideas, explore them, apply their learning, and work together on solving problems to benefit their community,” adds Gwen. TLN

A Service Learning Partnership Where Everyone Wins

By Mary Beth Lambert, Director, CESNW Service Learning Network

Kerry McManus stands behind the ninth-grade Windward student as she leans down to collect a water sample from the Schell Ditch Basin. “Make sure you take the sample from the middle, not the edge,” Kerry coaches the student. “You don’t want sediment in your sample.”



NSEA Education Coordinator Kerry McManus talks with Windward freshman Elyssa Zornes as she collects a water sample from the Schell Ditch Basin.

Kerry is the Education Coordinator at the Nooksack Salmon Enhancement Association (NSEA), a community-based nonprofit organization dedicated to restoring sustainable wild salmon runs in Whatcom County. NSEA and Windward High School began working together last fall to assist the City of Ferndale with data collection for its stormwater monitoring plan.

Their work resulted in a unique three-way partnership and letter of understanding between Windward, the city, and NSEA, approved by the Ferndale City Council in the fall. The letter describes the water quality monitoring and educational outreach activities that are being performed during the 2007-2008 school year and the specific responsibilities of each partner.

The arrangement appears to be a win-win-win for each partner.

“According to our salmon spawning surveys, we are seeing some of the lowest population levels in Whatcom County in ten years,” says Kerry. “As a result, salmon monitoring is critical to restoring sustainable wild salmon to our streams, but NSEA doesn’t have the staff capacity to conduct all the data gathering. The



Windward senior Johnson Qu reports water quality data to freshman Brynn Ecalbarger.

Windward students are conducting a vital service to our community.”

This sentiment is echoed by Bob Cecile, a stormwater engineer with the city of Ferndale. “The city is underfunded and under-staffed, so the students are providing a valuable service for us. I’m pleased that we have this opportunity to partner with the school.”

Windward ninth-grade students are also winners. Through their fieldwork, they are learning first-hand about water quality monitoring and salmon restoration and will collect data that city officials will use to manage the Schell Creek Watershed and comply with U.S. Department of Ecology standards for stormwater management.

In order for the city to be in compliance with the standards established by the federal government, a group of Windward science students conduct weekly water testing for fecal coliform at four Ferndale locations. The students collect water samples and transport the samples to the city’s lab for testing. As they collect the water quality data, students talk with NSEA staff about a restoration plan implemented during April on Schell Creek.

To support the students in their fieldwork, city officials shadowed them and recommended sampling techniques. The city also donated a custom-designed tool that assists the students with collecting water samples from the middle of a monitored site, so that they are less likely to collect sediment in their sample.

The Windward students also collect data at each site on dissolved oxygen, temperature, pH, turbidity, and conductivity in order to document changes and plan to post the results on a project website.

What Community Partners Say...

The CESNW Service Learning Network asked current community partners from the eight CESNW Service Learning Network schools to complete an on-line survey about their service learning partnership experience.

Three out of four partners agreed/strongly agreed with the following statements:

- I believe our community’s ability to solve problems is increasing because of participation and leadership from students.
- This experience has helped me gain a better understanding of the academic value of learning in the community.
- As a result of the students working with our organization, we have an increased capacity to provide services to the community.

The data that students collect will be shared with Ferndale residents through outreach and education activities sponsored by the city. Plans include developing a stormwater flyer, which will be enclosed in residents' upcoming utility bills. The flyer will define stormwater pollution (which includes runoff from septic systems, landscaping and gardens, motor oil, and household hazardous

wastes), describe its environmental impact, and suggest how individuals can get involved in local stream restoration projects sponsored by NSEA and other community-based organizations.

"It's rewarding to participate in a partnership that encourages students' exploration and discovery and also cultivates a powerful sense of community stewardship. This project is showing

kids—and adults—what the opportunities are and how easy it is to get involved," summarizes Kerry. ¶TLN

Information for this article was taken from an article by Kerry McManus, which appeared in the Winter 2008 Fish Tales, the quarterly newsletter of the Nooksack Salmon Enhancement Association (NSEA). More information about NSEA can be found at www.n-sea.org.

How Students Can Make a Difference in the World

By Santha Cassell, Teacher, Riverdale High School



Recently I was reading Barbara Ehrenreich's *Nickel and Dimed* with my juniors. Controversial and witty, Ehrenreich's account of her year trying to

stay fed and housed on minimum wage agitates our mostly comfortable student body. "I hate this book," said Thomas, an opinionated but perceptive kid in fifth period. Pressed for why he said, "Another book that proves the world is a terrible place and there is nothing we can do about it." I knew just what he meant, but I also smiled because there *is* something students can do about the world, and through Riverdale's Senior Exhibition,

students apply their research to changing the world for the better.

We have a community service requirement at our school and students generally accept it and fulfill those obligations gracefully. Senior Exhibition seemed like a logical place to push students to deepen their service and create service learning projects inspired by their research, as opposed to performing community service separate from their academic lives. Implicit in their projects is the idea that they can and should take responsibility for improving the world.

This is all high falutin' but like most great things, it is not easy. Like the rest of Senior Exhibition, service learning projects are driven by students' essential

questions. Students start to develop this question during junior year, when they write a mini-exhibition paper. They develop the question further throughout the 2nd trimester as they research and discuss their work with their peers and their teacher. When it works well, students become experts about their topic and their question drives their research.

But making research the motivation for service learning is challenging. A student will come to me at a loss for what a project should be. I ask what they've discovered in their research. Then I ask if they've asked an organization connected to the topic about needs the student might fill. Usually students have not done those things. Then I

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Photos in this article by Nolan Evans, Senior, Riverdale High School



Cliff Schrock from EC Company, a wind energy firm, and Erica Ceder from Fletcher, Farr, Ayotte, a green architecture and design firm, speak at Riverdale's first-ever student-developed sustainability symposium.

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continued from page 5)*

think backwards: what might such an organization need? Often, at this point in our service learning adventure, students think about their immediate community, their school, and district. They think of what they could do to make the school community a better place. This is a great starting point, but I anticipate that as students discover what they can accomplish, their sphere of influence will widen.

Many Riverdale seniors have identified projects that align with their own interests and passions. John is exploring ways in which businesses can incorporate sustainability into their products. Samuel is looking at current political barriers to a cleaner transportation culture. Brian's research centers on fuel options we have to combat global warming. The three seniors created a campus sustainability symposium, which included some of the most progressive companies in town, as well as politicians, and our local energy company. Students planned a day of panels, Q and A periods and discussion involving the whole school with some of the most influential leaders in our state. The symposium was an exciting day of learning for our students, staff, and community.

Angela spent this year studying the architecture of schools and the way community spaces can enhance community involvement. Laura's research focuses on water reclamation. They are working together to publicize a school bond that will fund the renovation of our district's elementary school. They are also working on voter registration amongst young people who live in the district, people who may not be tracking the school bond but that could be allies in the vote. Both students are making the connection between progressive construction, funding, and community involvement.

Service Learning by the Numbers

- An estimated 4.7 million U.S. K-12 students are engaged in service learning.
- Service learning is supported in part by the federal government through the Learn and Serve Program administered by The Corporation for National and Community Service, which granted over \$37 million in funding in 2006 to K-12 schools, higher education, and community organizations.
- 83 percent of U.S. principals report that service learning has a positive impact on student achievement.
- 92 percent of principals from U.S. schools with service learning programs report that service learning has a positive impact on students' civic engagement.

*Scales, P. and Roehlkepartain, E., 2004
and The Corporation for National
and Community Service*



At the sustainability symposium, Cindy Trames displays a shirt from Nau, a Portland-based sustainable clothing company.

A group of seven students, all of whom are studying a topic related to childhood development, have put together a curriculum for fourth and fifth graders at a local elementary school. The lessons are designed to develop leadership, community, and communication in

the younger kids. One of their reasons for developing this program (which they are implementing every Monday and Wednesday afternoon) is that better communication and community can circumvent the social ills that they studied in their papers. In addition, they are planting the seed of service learning in the next generation of high school students; they've made service learning a part of the curriculum for the elementary kids!

Not all students are working in groups. When her investigation of type-2 diabetes led her to understand poverty as a factor in the rising epidemic, Rena decided to create a cookbook with healthy, delicious recipes for people who use food banks. Her fascinating and painful discovery was that making recipes both healthful and affordable is hugely challenging.

Some students have been unable to create and implement service learning projects. As the end of the year draws near, several students are pulling together a patchwork of volunteer work, experiences that will teach them more about their topics, that they can connect to their research in their presentations. Other students are creating projects that will be continued by the incoming seniors. Quite a few juniors are already coming in with ideas for their service learning projects and their research.

As I begin thinking about next year, I wonder if it would be helpful for students to think about projects they'd like to do and build a research topic to support their work instead of the other way around. I also wonder if there are umbrella themes and ideas that would allow students to group themselves around interests, like ending world poverty, exploring water, or human rights. The work is very exciting and allows both teacher and students to be the change we wish to see. In any case, I see our seniors blazing a trail in service learning that juniors are already planning to extend. ◀TLN

Student Reflections from the National Service Learning Conference

Teams of students and adults from five of the Network's eight schools attended this year's national service learning conference, *Youth for a Change*, this April in Minneapolis. Four of the schools made presentations and shared their service learning projects during workshops and seminars. *The Learning Network* invited student presenters from Friday Harbor High School to share some of their reflections from the conference.



Friday Harbor students Hannah Waite, Wynn Barnard, and Mollie Taylor at the national service learning conference, *Youth for a Change*.

Wynn Barnard, Senior **Friday Harbor High School**

This was my second year at the national service learning conference, and I must say I had a very different experience this time around. Last year, we felt comfortable splitting up to go to the sessions which interested us individually, and our teachers encouraged us to be as independent as possible. This forced me to adapt to an environment of racial, cultural, and socioeconomic diversity to which I'd rarely before been exposed. Alone, I had to overcome awkward moments, fears and stereotypes in order to make friends. Ultimately, I think I gained the most just from that process of immersion.

This year, I traveled with two other girls, all of us good friends. Because we were all friends and worked so well together, we rarely felt the need to split up. While it was great having them as companions, I was almost disappointed at how easy this trip felt compared to last year's.

We never felt pressure to branch out, be independent and thus examine our own preconceptions.

The Yo! Movement's workshop was GREAT. The group works with urban kids, using hip hop as a creative outlet for kids who would otherwise be bored or at risk of getting caught up in inner-city violence. Coming from Friday Harbor, it is so, so, so easy to forget that kids in our nation live in fear of going to school or crossing the street. I left the session feeling inspired to some day work with urban kids/schools. So many Americans focus their energy on impoverished communities abroad—but violence, poverty and desperation similar to what we see in developing countries exists here at home, in different forms and through different people. American communities need just as much empowerment and attention.

Overall, the conference was stimulating. It is such a wonderful opportunity to find inspiration and connect with other leaders—I feel very fortunate to have experienced this twice!

Mollie Taylor, Junior **Friday Harbor High School**

It was an incredible opportunity to attend and make a presentation at the national service learning conference in Minneapolis. The conference really put things into perspective for me. I never realized how fortunate I am to live in a small community with so much support and resources available to me.

Just by having a little support and encouragement it enables youth to make change, whether it is in their community or the world. Listening to Pedro Noguera and Archbishop Desmond Tutu speak was very inspiring. They both brought attention to the fact that we, the youth of today, are the future of the world. Youth for a change!

The conference was such a great experience, I am very glad I was selected to attend. From this conference I brought back with me the inspiration and empowerment to continue with my pursuit of service learning projects and encourage other students to serve, learn, and create change because ultimately, we are the future and have the power to change the world.

Hannah Waite, Sophomore **Friday Harbor High School**

Going to the *Youth for a Change* conference in Minneapolis was a wonderful opportunity for me. It opened my eyes to the many ways everyone can make a difference in their community, country, and ultimately the world.

Listening to the speakers was my favorite part of the trip. I found many of them to be very inspiring and they made me consider who I think of myself as, who I want to be, and what change I want to make in my community. This trip was very worthwhile for me. Thank you to all who made it happen. ◀TLN

The Learning Network

A Newsletter for Districts and High Schools Engaged in Redesign Work

TLN



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the increasingly narrow range of learning goals that policymakers and leaders consider important today. Students not only grow intellectually through service learning activities, they learn by working with one another and, often, with adults outside of a school setting. They can move beyond the narrow worlds of adolescence and high school to a larger world, where they have the opportunity to participate in the life of their communities, and to contribute to that life beyond being good consumers.

And, of course, students have the opportunity to serve others in their community. We don't test for that, but it matters enormously that students understand that we are, all of us, enriched by serving others. And at other times, we are beneficiaries of other people's service to us—all part of the reciprocity that binds us together as communities, and as a society. ◀TLN

Register Now!

CESNW Service Learning Institute
June 24-25, 2008
Mt. Rainier High School, Highline School District

The Institute is designed to engage K-12 teachers in the exploration of the principles of effective service learning practice. Sessions will include presentations by researcher **Shelley Billig**, author **Kathleen Cushman**, and Quest High School teacher **Kim Huseman**, as well as the opportunity to network with other K-12 teachers and exchange resources, tools, and lessons learned.

Experienced practitioners, as well as those new to service learning, are welcome!

During the same week, we will also offer two-, three-, and four-day seminars on other topics including culminating projects, Critical Friends Groups, and systems redesign.

To learn more and register, go to:
<http://www.cesnorthwest.org/registration/>

The Learning Network is a quarterly newsletter written and produced by the Small Schools Project, which is part of the Coalition of Essential Schools Northwest Center.

The Project was created in 2000 to promote the understanding and development of small schools committed to providing rigorous, relevant learning experiences for all students, based on powerful relationships that support this learning. We provide support and assistance to high schools and districts committed to high school redesign and graduating all students college- and work-ready.

The Project offers a range of services, including school and district coaching and professional development activities for educators and administrators. We publish a variety of publications about small schools and produce hands-on tools to use in the classroom, school, district, and community.

For more information about the Project, to subscribe to this newsletter or print a copy, please visit <http://www.smallschoolsproject.org>.

To share information about your district or school's redesign efforts, or to suggest topics for this newsletter, please contact:

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