

Midwest Alliance

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PI's Column

Welcome to this first issue of the bi-monthly newsletter for the Midwest Alliance! It is my pleasure to introduce you to this new activity of the Alliance. We hope the newsletter will assist you in understanding what we are doing as a group, and facilitate both our and your efforts in promoting opportunities for students with disabilities in Science, Technology, Engineering, and Mathematics.



The Midwest Alliance (MIDWEST) is now in the third year of existence. It has been and continues to be an exceptional experience for the people involved. As you will learn from reviewing this newsletter, we are actively engaged in activities that we hope will have lasting impact.

Please feel free to communicate with any of us if you have questions or comments on the content in the newsletter or any of the activities of the Midwest Alliance. In addition, there is additional information available via our website, which is just in the midst of a major reorganization and redesign (www.stemmidwest.org).

Thanks again for joining us!

Sincerely,
Jay K. Martin
Principal Investigator



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Midwest Alliance

"At the Crossroads of Science and Service"

What is the Midwest Alliance?

The Midwest Alliance is funded by the National Science Foundation, with the aim of increasing both the quantity and quality of individuals with disabilities entering and succeeding in science, technology, engineering, and mathematics (STEM) education and careers. Midwest was formed in August 2005, so we are now approaching midway through our third year.

The Midwest Alliance is a consortium of research educators, scientists, engineers, and student disability service providers from the University of Wisconsin-Madison (UW-Madison), the University of Illinois (UI) and the University of Northern Iowa (UNI). We have found significant common ground on which to build, and tremendous synergy in our collaborations because of the unique experiences and expertise that the different parties contribute to the Alliance activity.

MIDWEST is a new, evolving NSF Regional Alliance, and is building infrastructure and programs, as well as identifying and fostering relationships with partners in the multi-state region. Collaborations with existing campus, state and national organizations, and with the other Regional Alliances, strengthen MIDWEST's programs and broaden the impact of these initiatives on state, regional, and national levels.

The purpose of this Alliance is to increase the number and quality of students with a wide range of disabilities completing college and graduate work in science, technology, engineering, and mathematics, and transitioning to employment.

Midwest Alliance Belief Statement

As a result of the formation of the Midwest Alliance, and our specific objectives and experiences, the Midwest Alliance staff has been developing a number of fundamental beliefs about students with disabilities and the services they need to be successful in life-long STEM careers. We have been and will continue to develop and use this belief set as a guiding force for our services to students and the activities of the Midwest Alliance.

The Midwest Alliance believes:

- 1. Individuals with disabilities, especially those with severe disabilities, are very underrepresented in higher education and this trend should be reversed.*
- 2. In order for these individuals to succeed, comprehensive service strategies that extend from personal assistance training to neuropsychological testing to accessible housing will be necessary to ensure they have equal opportunity to have choice about educational paths and future careers.*
- 3. Increasing the number of individuals with disabilities in higher education overall is a valid method of increasing the number of students with disabilities in STEM.*

As such, the Midwest Alliance employs a three-part strategy to increase the number of individuals with disabilities participating in STEM education and careers. We will target services for individuals with disabilities who:

- 1. are interested in post-secondary education and are considering STEM as a viable option.*
- 2. are interested in post-secondary education and have not previously considered STEM as a career option; helping them determine if STEM is a good fit.*
- 3. have not seen post-secondary education as a viable option due to the severity of their disabilities; helping them to determine if STEM is a viable option.*

We believe that a systems approach is necessary if there is any chance for systemic change necessary to provide equal opportunity for students with disabilities.

Midwest Alliance Goals

Five action goals provide the common framework for Midwest Alliance activities:

- 1. Reaching Students:** Identifying, targeting, and providing needed transitional services for secondary and post-secondary education students with disabilities for successful STEM education and careers
- 2. Reaching Teachers, Faculty, Staff, Disability Service Providers, and Employers:** Providing training and tools for primary, secondary, and post-secondary teachers and disability services providers to enhance opportunities for students with disabilities in STEM education and careers
- 3. Intervention, Technology Development, and Systemic Research:** Improving the likelihood of independent living and long-term employment success for post-secondary students with disabilities through support services and technology
- 4. Building and Strengthening Collaborations:** Providing an environment in which collaborations can be developed that build capacity through organizational interactions and specific management activities
- 5. National Dissemination and Systemic Change:** Enhancing the reach, accuracy, and impact of the efforts of the Midwest Alliance through input and counsel from Advisory Boards, through publications, presentations, workshops, and web presence, and developing partnerships with industry, research labs, and work sites

Staff Spotlight

Greg Stefanich

Dr. Greg Stefanich is a Regents Professor at the University of Northern Iowa. His scholarly activity emphasizes science education for students with disabilities. He received his doctoral degree from the University of Montana in 1971 and has served in a number of capacities in higher education. Recognitions include the Hubbard Outstanding Educator Award (2004),



Ross A. Nielsen Distinguished Service Award (1998), Distinguished Scholar Award (1994), and Regents Award for Faculty Excellence (1993) from UNI; induction into the Iowa Academy of Education (2002); the R.P. Brimm Award for Outstanding Contributions to Middle Level Education in Iowa (1983); the Presidents Award from the National Middle School Association (1981), induction as a fellow in the American Association for the Advancement of Science (2005), Distinguished President Award Iowa-Nebraska District of Kiwanis International (2006), and Lifetime Service Award from the Association of Science Education for Students with Disabilities (2006).

He serves MIDWEST as the education coordinator providing professional development programs for practicing and pre-service science educators, preparing publications and seeking resources to enhance learning opportunities for students with disabilities in STEM education. He received notification in October 2007 that a grant proposal to the Roy J. Carver foundation was awarded (see related news item).

“My experience serving as a staff member on the MIDWEST has provided me with a wonderful opportunity to bring together over 40 years of experience as a professional educator to improve the lives of students with disabilities. The consortium of scientists, engineers, and student disability service providers from the University of Wisconsin and University of Illinois has significantly improved my knowledge base about opportunities and resources for students with disabilities who have STEM interests. I am very optimistic that results of the synergism emerging from this project will improve support structures and educational experiences for students with disabilities and provide ideas and stimulus for systemic change in education.”

Books

Stefanich, G.P. (Ed.). (2007). *Inclusive Science Strategies*. Dubuque, IA: Kendall-Hunt.

Stefanich, G. P. (Ed.). (2007). *The Ontogeny of Inclusive Science*. Dubuque, IA: Kendall-Hunt.

Book Chapter

McGuinness, R. & Stefanich, G. P. (2007). Special needs and talents in science learning. In N. Lederman & J. Abel (Eds.), *Handbook of Research in Science Education AETS Special Publication*. Mahwah, NJ: Erlbaum.

Articles

Stefanich, G. P. (2007, August). *Opportunities and challenges relating to high school and post-secondary education for students with disabilities in science*. Proceedings of the 2006 Conference on Smoothing the Transition from High School to Successful Postsecondary Educational Experiences: An Invitational Working Conference, FINE Foundation, Des Moines, IA.

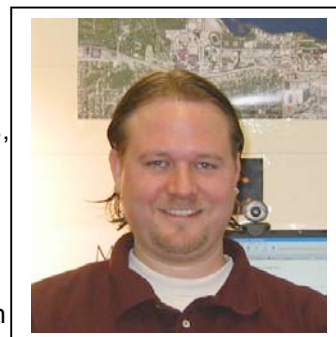
Stefanich, G. P. (2007, July). *Connecting teaching and learning*. Proceedings of the First International Conference on Technology-based Learning with Disability, Wright State University, Dayton, OH.

Stefanich, G. P. (2007, March). Teaching and learning for all students. *ITeachNet's International Education Webzine*. (<http://www.iteachnet.org/webzine/?q=node/29>)

Introducing....

Dan Nordstrom

Dan Nordstrom is the new Mentorship/Internship Program Coordinator at UW-Madison. A 2006 graduate of the UW-Madison's Master in Social Work (MSSW) program, he brings an interdisciplinary, systems approach to the MIDWEST program goals and mission. Some of Dan's work experience has included providing direct services and supports to people with developmental disabilities to enable them to live in their own homes, working as a volunteer job coach and youth mentor, and freelancing overseas as a writer, teacher, and humanitarian aid consultant. Dan is also married and has 2 children – including a son who was born



in July, and a 4-year-old daughter. His interests include disability rights, international development, and innovations in web technology.

Dan's skills in networking, and ability to provide useful resources, monitoring, and other support to young people engaged in educational and professional development will benefit the Mentorship/Internship Program by increasing the number of people who know about the program, as well as the likelihood that they will get involved and ultimately become participants as a mentors, scholars, interns, and future employers.

“I am grateful for the opportunity to work with MIDWEST to further the progress that has been achieved in opening doors and presenting equal opportunities to all the members of our society. It's exciting to be a part of a consortium of professionals who are working on many different levels to effect change for the better.”

Staff Spotlight continued next page

Introducing....

Tina Lam

Tina Lam is the new Internship/Mentorship Program Coordinator at the University of Illinois. An Illinois alumna with her bachelor's degree in statistics and her master's degree in recreation, sport, and tourism, Tina has a STEM perspective but has also developed skills to help coordinate and organize projects and programs. She will be able to start off her position with a thorough knowledge of the Illinois campus and the university system. She and Dan will be working closely together to



coordinate and synchronize their efforts in developing student programs for the Midwest Alliance.

Tina stated that her background has "taught me to be more aware of the amount of influence and the effect that special events have on individuals and communities and how they educate and improve the quality of life for those attending and participating." She plans to apply this strategy to developing and coordinating events for the MIDWEST grant. Her background provides her with excellent experience in working with the community, particularly in educational settings to disseminate information, recruit participants, and develop events.

We are all very excited to have both Dan and Tina on board. We know they both bring rich backgrounds in serving students with disabilities and will bring new perspectives in student program development. Please join us in welcoming our newest staff members and feel free to contact them for information or with your suggestions.

Programs and Activities Highlights

State-of-the-Science Summit: A Call for Action

Two realities have emerged from discussions in the Midwest Alliance:

1. It is critical that there be additional exchange and study of the components of post-secondary disability service programs essential for student success for students with severe physical disabilities and
2. Expansion of successful programs will require significant planning, commitment, and possible policy changes.

To initiate action on these two issues, we will be hosting a Summit June 5-6, 2008 in Champaign-Urbana, Illinois. The attendees will include members of the Regional Alliances, post-secondary disability service providers, representatives from NSF, ED, and NIH, and other state and federal government stakeholders. The Summit will last for a day and a half, with the focus on both discussion and developing plans of action.

The specific objectives of the Summit include identification of policy, fiscal and programmatic barriers that have precluded or impeded the:

- enrollment, retention, and graduation of students with severe physical disabilities in post-secondary STEM education at levels commensurate with their abilities
- engagement of students with severe physical disabilities in laboratory and internship training in STEM fields

- employment and advancement of graduates with severe physical disabilities in STEM careers.

In addition, an objective of the Summit will be to identify and describe effective post-secondary education disability service strategies that result in high rates of graduation and transition to employment for persons with severe physical disabilities. Finally, we want the summit to end with a plan for specific action at the local and/or campus level, the State level, and the National level, that would be required for fuller adoption and implementation of effective services.

We will post updates in the forthcoming Midwest Alliance newsletters and on the Midwest web site. If you have specific thoughts or comments about the Summit, or want to participate in the Summit, please contact Jay Martin at martin@engr.wisc.edu or call him at (608) 263-9460.



Programs and Activities Highlights (cont'd)

Stefanich Awarded Roy J. Carver Charitable Trust Grant

Last month, Dr. Greg Stefanich received word that his application to the Roy J. Carver Charitable Trust, titled "*Adaptive Equipment and Supplies for Science and Mathematics Education: A Loan Program for Iowa Schools*" was funded for \$128,691.

This project will create a loan program of adaptive equipment and materials for middle and high school science and mathematics teachers and their students with disabilities. There are approximately 3,000 students, scattered throughout Iowa's K-12 schools, who have significant motor and/or sensory disabilities. Participating fully in science and math learning activities can be very difficult for students with motor and sensory disabilities. While this is a significant number, it is a relatively small proportion of the school population. In many cases, the student with a disability is the only student in the building, or in some cases the district, with a specific sensory or motor impairment. As a consequence, the district may consider that the relatively high cost accommodations associated with participation in secondary science and mathematics is not a good use of its resources.

The problem is compounded because few science and mathematics teachers and most accommodation specialists are aware of materials and resources to support science and mathematics instruction for students with sensory and motor disabilities. This project will help Iowa teachers, schools, and students see how adaptive equipment and materials can foster the science and mathematics learning of students with disabilities. Activities to be supported by the grant include researching the adaptations needed by Iowa students and their teachers; assembling kits of equipment and materials to meet those needs; assisting teachers and students in implementing the kits; and evaluating the adaptations' impact on student learning and on teaching. The equipment and materials purchased through the grant will enable UNI and the Iowa Braille and Sight Saving School to begin an ongoing loan program for Iowa schools.

The project will, over two years, conduct a needs assessment and set up a materials loan program to



enhance and support secondary school science and mathematics instruction for students who have major sensory and/or motor impairments. During the project's first year, interviews will be conducted with 14 teachers who are expecting to teach a student with a severe disability during the 2008-2009 school year. The curriculum will be examined, focusing on laboratory investigations and possible adaptations to improve access for their student. Materials will be purchased during the spring and summer of 2008. Kits will be prepared, and appropriate assistance will be provided in preparation for the beginning of school in August 2008. The 14 participating teachers and, when appropriate, the student will be asked to keep a journal noting how and when the materials in the kits were used and their value. E-mail correspondence will be analyzed to assess interactions between parties involved in the project.

There is clear and mutual benefit between the Carver grant and Greg's activities as the Education Coordinator for the Midwest Alliance. We applaud Greg for this important outreach activity directly to students with disabilities and their teachers.

Beckwith Hall Alumni Research: Barriers and Facilitators to Education and Employment

Drs. Norma Stumbo and Brad Hedrick are conducting a pilot research project with alumni who resided at Beckwith Hall and graduated in both STEM and non-STEM fields. Beckwith Hall, located at the University of Illinois at Urbana-Champaign, is a unique, one-of-a-kind residential facility for students with severe physical disabilities resulting in high support needs. Fifteen Beckwith alumni will be interviewed during this exploratory stage.

The overall purpose of the personal interviews is to determine the policy, fiscal, programmatic, environmental, and social barriers that have precluded or impeded as well as the facilitators that have greatly enhanced the full participation of these alumni with severe physical disabilities in STEM and non-STEM education and careers. We hope, by completing this pilot project, to begin to more fully understand the experiences of individuals with severe physical disabilities than is currently available in published research. We hope in turn, this helps us and others develop better, evidence-based programs and services for this often-neglected but promising population. After completion of the pilot study, we hope to receive funding to increase the sample size, conduct focus groups, and broaden the applications of the research findings.

Courtney Weisman, a Masters student in rehabilitation psychology at UW-Madison and former University of Illinois graduate in rehabilitation education, has been hired to conduct the interviews and help with the data analysis.

Student Successes

Mentorship Program

The Midwest Alliance Mentorship Program, originally written by Dr. Mark Leddy and funded by a supplement grant from the National Science Foundation, touched the lives of many high school and university students with disabilities in its first year of operation. Ten Wisconsin high school students participated as scholars/mentees and five university students acted as mentors to them. The tables below provide details.

Mentee/Scholar	High School/Town
Scholar #1	Middleton High School, Middleton
Scholar #2	Shabazz High School, Madison
Scholar #3	La Follette High School, Madison
Scholar #4	La Follette High School, Madison
Scholar #5	La Follette High School, Madison
Scholar #6	Lake Mills High School, Lake Mills
Scholar #7	Hudson High School, Hudson
Scholar #8	James Madison Memorial High, Madison
Scholar #9	Middleton High School, Middleton
Scholar #10	La Follette High, Madison

Mentor	Major	Institution
Mentor #1	Mechanical Engineering	UW-Madison
Mentor #2	Psychology	UW-Madison
Mentor #3	Biology, Economics	UW-Madison
Mentor #4	Vet Tech	Madison Area Technical College (MATC)
Mentor #5	Biology	UW-Whitewater

In addition, Midwest staff held Parent Events/Scholar Trainings at two local high schools. The purpose of these events was three-fold: 1) to inform parents and Scholars about the program as well as other opportunities, 2) to discuss with parents the challenges and supports for transitioning high school students with disabilities into higher education in STEM, and 3) to train Scholars to be active participants in the Mentorship Program.

A second program included a “High School Intro to STEM and Technology Tours” event, held on the UW-Madison campus. Activities included tours of UW-Madison campus laboratories, and science enrichment activities. Thirteen high school students attended; some were enrolled in the Mentorship program and some were not.

The high school mentees were very favorable toward the program. The high school mentees mentioned they wanted to “*get good advice and learn from [the mentor’s] mistakes*” and “*learn about college experience for students with disabilities.*” Some of the mentees especially felt it helped

them prepare for their future at a college or university – “*My mentor led me on a tour of UW-Whitewater...If I decide to go there, I will already be familiar with the campus.*” The university mentors reported that “*knowing that I may help relieve anxieties is important to me*” and “*I feel honored to be a mentor! I hope my scholar comes to my campus – it would be cool to see him on campus!*” Parents reported feeling relieved that their high school students gained valuable self-advocacy skills and greater familiarity with financial aid, living in the residence halls, and general campus life.

Internship Program

A second outreach thrust is that of career-interest internships. The students below, ranging from high school to doctoral-level students and recent graduates, were placed in a wide variety of science, technology, engineering, and math internships.

Student	Internship/Externship Experience
Intern #1	Engineering research lab at UW-Madison
Intern #2	Information Technology internship at UW-Madison
Intern #3	Internship with HS science teachers in Costa Rica, studying environmental ecosystems

Student	Major	Institution	Internship
Intern #1	Chemistry	UW-Madison	UW-Madison chemistry lab
Intern #2	Zoology	UW-Madison	UW-Madison zoology lab
Intern #3	Biology	UW-Madison	Northwestern University biology lab
Intern #4	Information Technology	Madison Area Technical Coll. certificate	TechWorks
Intern #5	Information Technology	Eastern Illinois University	TechWorks
Intern #6	Entomology	University of Illinois	Commonwealth Scientific and Industrial Research Org. (CSIRO), Canberra, Australia
Intern #7	Kinesiology	University of Illinois	Exercise Neuroscience Laboratory, UIUC

All the students were positive in their comments about the internship program experiences. One of the most positive outcomes was the heightening of their interest and abilities in their focus areas.

Important Upcoming Dates	
Jan 8	Local Advisory Board Call (1 pm CST)
Jan (tbd)	UW Science Lab Tours for HS students
Mar 27-30	NSTA Conference (Boston)
Apr 10-11	ILLOWA AHEAD Conference (Davenport)
Jun 5-6	State-of-Science Summit (Champaign)
Jul 14-19	AHEAD Conference (Reno)