



# GOODNEWSLETTER

Winter 2008

Science Education for Students with Disabilities (SESD)

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*Sabira Mohamed,*  
Editor & Designer

For more information,  
visit: [www.sesd.info/](http://www.sesd.info/)

## Letter from the President

Dear SESD Friends,

I hope this finds you well and enjoying this school year.

One of the most important features of this newsletter is the announcement and information of the SESD pre-conference on March 26, 2008 at the Seaport Hotel in Boston. The National Science Teacher's Association (NSTA) National Conference will follow on March 27-30.

The pre-conference meeting will bring together science educators, special education teachers, parents and administrators to join in the discussion and learning about topics such as teaching strategies, curriculum adaptation, and advocacy practices that encourage and support the full participation of students with disabilities in science from elementary - secondary education.

The ideas and practices that will be presented are among the very best in the country. To me, these "best practices", model evidenced-based theories that have yielded successful results, for students with a variety of disabilities. These practices offer stepping stones for each of us as we take pieces of a specific practice and personalize them in our teaching. This innovative thinking and these new practices are critical to our efforts to encourage the inclusion of all students in science. The SESD pre-conference will offer the opportunity to gather up some incredibly effective "stepping stones."

Science is a very exciting field. The theories, hypotheses, inventions, and differing opinions fill our media, our classrooms, and almost every aspect of our lives. Our explorations of everything from drugs to climate change challenge our intellect and fuel our lives. Field trips to laboratories, museums, and space centers give credibility to so many of our thoughts and actions. As educators, our role is to equalize the learning field for everyone.

I hope you will enjoy this and other features of the newsletter. Special thanks to our editor, Sabira Mohamed, for her work in putting this newsletter together.

Please email any comments to me at [lsummers@aaas.org](mailto:lsummers@aaas.org).

And.....very happy holidays to you!!

*Laureen Summers*

## Events at the 2008 Annual Convention of the National Science Teaching Association, Boston, MA

*Anyone interested and all SEDS members are encouraged to attend the following events:*

### SESD Business Meeting

The annual SEDS business meeting will be held on Friday, March 28 from 2:00 - 4:00 p.m., 16<sup>th</sup> Floor Boardroom, Seaport Hotel.

### Science-Abled Breakfast

The science-abled breakfast meeting is an event that brings together teachers of disabled students, parents, science educators and scientists. At this meeting, we will recognize recipients of the *Lifetime Service Award for Outstanding Contributions in Science Education for Students with Disabilities* and the *Lawrence Scadden Teacher of the Year Awards*. The meeting also features presentations that highlight the educational experiences of scientists with disabilities and their contributions to science.



This year our featured speaker will be Dr. James Phillips, a physicist at the Harvard-Smithsonian Center for Astrophysics. His presentation is entitled: *Gravity, next-generation astronomical telescopes, and glacier motion: doing experimental physics with a vision disability.*

Accurate distance measurements using lasers are central to projects James Phillips has undertaken. Testing the equivalence principle of general relativity with freely-falling masses, a picometer laser gauge measures the distance between the masses. Astronomical telescopes of the future will require mirrors too large to launch into space fully-assembled, so they will be launched in pieces, and an active alignment system based on the picometer laser gauge will make them act as a single large mirror. Outlet glaciers do not creep steadily towards the sea, they move in fits and starts, and pulsate with the tide. Modern optical techniques, some borrowed from the laser gauge, will help to monitor this motion, allowing better understanding of variability and response to climate. Phillips developed macular degeneration in 2002. He will describe his work as well as accommodations and ways he has learned to continue his career in experimental physics.

The meeting will be held on Saturday, March 29 from 7:00 to 9:00 am. A hot breakfast will be served, and tickets will be required to attend. Tickets can be obtained in advance or at the conference through NSTA.



### SESD AWARD UPDATES

*SESD members - Please note the two awards that recognize excellence in teaching science to students with disabilities!*

**The Lawrence Scadden Teacher of the Year in Science for Students with Disabilities** is co-sponsored by SEDS and New Mexico State University's RASEM (Regional Alliance for Science, Engineering and Math for Students with Disabilities). The Scadden Award goes annually to a teacher who has shown exemplary teaching that significantly reduces barriers in the science classroom. The \$1,000 award will be presented at the Science-Abled Breakfast in Boston on March 29, 2008 at the National NSTA Conference.

The 2006-2007 award went to Bruce Bergren, a Special Education teacher at Homewood-Flossmor (Illinois) High School.

**The Lifetime Achievement Award for Outstanding Contributions in Science Education for Students with Disabilities** is sponsored by SEDS and recognizes a person who has devoted a significant portion of his/her professional life to being a strong advocate for inclusion in the science classroom. The awardee is presented a plaque of recognition of a lifetime of service to students who have disabilities at the Science-Abled Breakfast in Boston. There is no deadline for applying. Candidates remain in the nomination pool from year to year.

The 2007 award went to Ed Keller, Jr. of West Virginia University in Morgantown.

Information and nomination forms may be found by going to the SEDS website ([www.sesd.info](http://www.sesd.info)) and clicking on the appropriate link.

**FEATURED EVENT:**  
**Science Education for Students with Disabilities (SESD) Pre-Conference**  
**March 26, 2008 • Seaport Hotel, Boston MA**

SESD members and interested persons are encouraged to attend the SESD pre-conference being held in the Constitution Room of the Seaport Hotel in Boston on March 26, 2008. The SESD pre-conference will be held the day preceding the National Science Teachers Association (NSTA) conference. A variety of topics will be presented. Hands on activities coupled with information and strategies on topics of interest for science educators, special education teachers, parents, and/or administrators at all levels, will make this day a "must attend" for all. Interested persons, please complete registration form and email to: [pdavidson@usi.edu](mailto:pdavidson@usi.edu). Professional Development credits will be available.

**TOPICS TO BE SHARED:**

- ▶ Science Education/Careers: Then and Now
- ▶ Inclusion and Collaboration: A Team Approach
- ▶ Colorblindness: Addressing a Little Understood by Prevalent Deficiency
- ▶ Who Makes a Difference and Why?
- ▶ Extracurricular Activities to Support the Participation of Students with Disabilities in Science
- ▶ The Role of Advocacy in Supporting High Quality Science Education for All Students

**Science Education/Careers: Then and Now**

**Ms. Lauren Summers** - President of SESD, and Program Associate of the Project on Science, Technology and Disability and ENTRY POINT! at the AAAS Project on Science, Technology and Disabilities  
**Ms. Angela Foreman** - Faculty member, Rochester Institute for the Deaf  
**Mr. Alex Mueller** - Quality Engineer for Mathworks

The panel will focus on careers in STEM, discussing how a lack of resources in the past made it difficult for people with disabilities to enter science and science related fields and because of programs in place today such as ENTRY POINT, such programs have opened a gateway for students with disabilities to enter the science career pipeline.

**Inclusion and Collaboration - A Team Approach**

**Ms. Patti Davidson** - Instructor Teacher Education, University of Southern Indiana, Evansville IN  
**Ms. Heidi Slavkin** - Special Education Teacher, Mt. Vernon Public Schools, Mt. Vernon, IN

This session will focus on the process of collaborative teaching. With a mandate of inclusion, general education and special education teachers are finding themselves working even closer together to meet the needs of their students. Through interactive participation, attendees will be asked to focus on the following: 1) What makes an effective team? 2) What prerequisites need to be in place for "teaming"? 3) Who is the "team"?

**Colorblindness: Addressing a Little Understood but Prevalent Deficiency**

**Dr. John Stiles** - Science Curriculum Consultant, Heartland Area Education Agency, Johnston, IA

This session will present a nuts and bolts presentation of Dyschromacy ("Color Blindness"), and how it affects 8% of your students. Presented by a colorblind educator, this session takes a look at the genetics and evolution of dyschromacy in humans, discusses ways that students are affected, and gives practical suggestions to help teachers reduce barriers for students who struggle with color discrimination in the science classroom.

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**Who Makes A Difference and Why?**

**Dr. Greg Stefanich** - Regents Professor, University of Northern Iowa, Cedar Falls. IA

Dr. Stefanich will address curricular and instructional adaptations related to the teaching of students with disabilities. Three questions in adapting curriculum for students with diverse learning needs will be addressed: 1) What teaching practices create an effective inclusive science classroom? 2) What types of adaptations do teachers need to implement to meet the needs of diverse learners in the general education setting? 3) What are strategies teachers frequently employ in an effective inclusive science classroom? An interactive hands-on session focusing on strategies and materials to increase science learning for all students, including those with disabilities. Numerous resources will be shared and demonstrated.

**Extracurricular Activities to Support the Participation of Students with Disabilities in Science**

**Ms. Babette Moeller** - Senior Scientist, EDC Center for Children and Technology, New York City, NY

**Ms. Lynn Lovewell & Ms. Samantha Langley-Turnbaugh** - Eastern Alliance for Science, Technology, Engineering and Mathematics, University of Southern Maine

**Ms. Lyla Crawford** - DO-IT Project, University of Washington

In this session moderated by Dr. Babette Moeller, participants will learn about extracurricular activities that facilitate the participation and achievement of students with disabilities in science. Ms. Lyla Crawford will share strategies for effective mentoring and for providing students with work-based internship experiences in science.

**The Role of Advocacy in Supporting High Quality Science Education for All Students**

**Ms. Sami Kahn** - Science Coordinator, Collegiate School, New York NY and Attorney - specializing in Special Education laws

“It takes a village” to ensure that students with disabilities obtain all the elements necessary for their success in the science classroom. Teachers, parents, administrators, and students all have a role in this important endeavor. During this session, participants will learn about and model the legal, educational, and interpersonal tools, which can be utilized to advocate for and by students with disabilities in order to support their success in science.

**REGISTRATION FORM FOR SESD PRE-CONFERENCE**

March 26, 2008 • Seaport Hotel, Boston MA

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Email: \_\_\_\_\_

Day Phone #: \_\_\_\_\_-\_\_\_\_\_-\_\_\_\_\_

Submit form to: [pdavidson@usi.edu](mailto:pdavidson@usi.edu) or Patricia Davidson, Teacher Education, University of Southern Indiana, 8600 University Boulevard, Evansville IN 47716

Area of Focus: \_\_\_\_\_ Elementary \_\_\_\_\_ Middle School  
(Check all that apply) \_\_\_\_\_ High School \_\_\_\_\_ University  
\_\_\_\_\_ Science \_\_\_\_\_ Math \_\_\_\_\_ Other: \_\_\_\_\_

Are you currently a member of SESD? \_\_\_\_\_ Yes \_\_\_\_\_ No

How did you hear about the SESD conference? \_\_\_\_\_

Will you require specific accommodation(s)? \_\_\_\_\_ Yes \_\_\_\_\_ No  
(e.g. Wheelchair access, sign-language interpreter, listening device, Braille or large print materials, etc.)

If yes, please state specific need(s). \_\_\_\_\_

## Teaching Lab Courses to Students with Disabilities



As scientific fields make increasing use of technology, new opportunities emerge for people with a variety of abilities. When students with disabilities and science teachers form learning partnerships, the possibilities for academic and career success multiply. Some students with disabilities have conditions that are invisible; some are visible. Their challenges include gaining knowledge and demonstrating knowledge. In most cases, it takes just a little creativity, patience, and common sense to make it possible for everyone to learn and contribute.

Below I have summarized some examples of alternative arrangements that can be made. They come from participants in the DO-IT project at the University of Washington. DO-IT (Disabilities, Opportunities, Internetworking and Technology) is primarily funded by the National Science Foundation. It makes extensive use of computers, adaptive technology and the Internet to increase the successful participation of people with disabilities in academic programs and careers in science, engineering, and mathematics.

### *Gaining Knowledge*

Many students with disabilities face challenges to gaining knowledge. Examples of specific challenges and accommodations follow.

- For the student who has difficulty reading standard text or graphics due to a visual impairment, materials can be provided in large print or Braille, on tape, or via computer and tactile drawings. Access to adaptive technology that provides enlarged, voice, and/or Braille output can be useful.
- If seeing material on a blackboard or overhead projector due to a visual impairment is a challenge, a student may use binoculars and the instructor can be sure to verbalize the content of all visually displayed materials.

- For the student who cannot read output from standard science equipment because of a visual impairment, try interfacing lab equipment with computer and providing large print and/or speech output. Also, mark scientific equipment with Braille and large print labels can be helpful as well.
- If hearing presentations and instructions is a challenge, a student can use an FM system, interpreter, and/or printed materials. An instructor can help by facing a student who is lip reading and writing important points on an overhead projector or blackboard.
- If a student cannot hear multimedia and videotaped presentations, captioned presentations and/or an interpreter can be provided.
- When understanding concepts due to a specific learning disability is a challenge, visual, aural, and tactile demonstrations incorporated into instruction can be helpful.
- If a student has difficulty reading because of specific learning disability, providing extra time and access to materials via a computer equipped with speech and large print output can sometimes be helpful. Internet access with a system like this can also be an important resource.
- For a student who has difficulty taking notes in class because of a mobility or visual impairment, use of a portable computer system with word processing and adaptive technology can allow independent note-taking.
- A student who cannot operate lab equipment and conduct lab experiments due to a mobility impairment can benefit from an accessible lab facility and adjustable-height tables. A lab partner or scribe can facilitate participation. In addition, computer-controlled lab equipment with alternative input devices (e.g., speech, Morse code, alternative keyboard) and modified scientific equipment can provide access.
- For the student who cannot complete an assignment or lab on time because of a health impairment, flexible scheduling arrangements allow completion of work.
- For the student who has difficulty completing research because of a disability, access to research materials on the Internet can be helpful.

### *Demonstrating Knowledge*

Some student with disabilities cannot demonstrate mastery of a subject by writing, speaking, or by

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working through a problem in a lab. Many of the accommodations for gaining knowledge can help the student demonstrate mastery of a subject as well. Examples of other accommodations follow.

- For the student who has difficulty completing and submitting worksheets and tests because of a visual impairment and/or a specific learning disability, instructors can provide worksheets and tests in large print or Braille, on tape, or via computer. Access to adaptive technology that provides enlarged, voice and /or Braille as well as standard print output can maximize student independence.
- If completing a test or assignment on time because of a disability that affects the speed at which it can be completed is a problem, extra time or alternative testing arrangements can provide an appropriate accommodation.

- If a student cannot complete a test or assignment because of an inability to write, in-class access to a computer with alternative input devices (e.g., Morse code, speech, alternative keyboard) can help that student submit work independently.

### Conclusion

The examples provided demonstrate a wide variety of alternatives for helping a student fully participate in science labs. Since each person's situation is unique, the best solutions for maximizing participation come about when the student and teacher work together to develop creative alternatives that address the specific challenges faced by students with disabilities.

- Sheryl Burgstahler, DO-IT

"Teaching Lab Courses to Students with Disabilities," University of Washington DO-IT, Reprinted with Permission.

## Journal of Science Education for Students with Disabilities CALL FOR PAPERS



The Journal of Science Education for Students with Disabilities (JSESD) welcomes manuscripts and reviews year round. We urge you to submit your papers in ensure current information is disseminated to all.

The JSESD is published by SEDS and is dedicated to addressing science issues for persons with disabilities, especially those in educational settings. Unsolicited manuscripts are welcomed. You are encouraged to share views of the status of science for persons with disabilities, effective teaching practices, curricula and exemplary work samples that are student produced.

More information can be found on the SEDS website at <http://www.sesd.info/journal>. JSESD back issues are also available online.

*Send manuscripts and reviews to:*

Dr. Larry Quinsland  
1250 Telephone Road  
Rush, NY 14543  
E-mail: [LKQ9999@rit.edu](mailto:LKQ9999@rit.edu)

### SUBMISSION GUIDELINES:

- APA style
- Double-space with wide margins
- Submit three (3) copies of the manuscript (if printed)

If accepted, contributors will be asked to send manuscripts on disk, using either Microsoft Work (Macintosh preferred) or Word Perfect 5.1 (IBM).

The cover page should include:

- Title
- Author
- Author's position
- Author's address
- Date
- A running head
- A one-paragraph abstract

## AUTISM: The Musical

In 1980, autism was a relatively rare disorder, diagnosed in one in 10,000 children in the United States. Now it is one in 150.

AUTISM: THE MUSICAL counters today's bleak statistics with one woman's optimistic pledge to lead a group of autistic children in defying diagnosed expectations by writing, rehearsing and performing their own full-length musical.



Following five Los Angeles children over the course of six months, director Tricia Regan captures the struggles and triumphs of their family lives and observes how this musical production gives these performers a comfort zone in which they can explore their creative sides.

Both on and off stage, AUTISM: THE MUSICAL is a call-to-arms, bringing attention to a modern-day epidemic, all the while celebrating the way the human spirit can overcome any challenge.

The film has been playing in several cities in the US and will premiere on HBO this coming April with a DVD release to follow.

For more information, be sure to check out [www.autismthefilm.com](http://www.autismthefilm.com) and join their email list.

From *AUTISM: THE MUSICAL* Official Website, [www.autismthefilm.com](http://www.autismthefilm.com)

### Calendar of Select Events, Conferences, and Workshops

Date	Title of Event	Location	Website/Other Info.
<b>NOVEMBER 2007</b>			
6-9	10 <sup>th</sup> Annual Accessing Higher Ground: Accessible Media, Web, and Technology Conference for Education, Businesses, and Web and Media Designers	Boulder, CO	<a href="http://www.colorado.edu/ATconference">www.colorado.edu/ATconference</a>
7-10	National Association for the Education of Young Children Annual Conference	Chicago, IL	<a href="http://www.naeyc.org">www.naeyc.org</a>
15	Achieving Shared Goals Through Systematic Integration of Education and Mental Health	Teleconference	<a href="http://gucchd.georgetown.edu/programs/ta_center/tacalls2007.html">gucchd.georgetown.edu/programs/ta_center/tacalls2007.html</a>
<b>DECEMBER 2007</b>			
5-7	NFB National Training Conference for Residential Rehabilitation Centers for the Blind	Baltimore, MD	<a href="http://www.nfb.org">www.nfb.org</a>
5-8	Equity, Opportunity and Inclusion: 2007 TASH International Conference	Seattle, WA	<a href="http://www.tash.org/2007tash/index.htm">www.tash.org/2007tash/index.htm</a>
<b>JANUARY 2008</b>			
5-8	Hawaii International Conference on Education	Honolulu, HI	<a href="http://www.hiceducation.org">www.hiceducation.org</a>
15-17	EDUCAUSE (Mid-Atlantic Regional)	Baltimore, MD	<a href="http://www.educause.edu/conference/marc">www.educause.edu/conference/marc</a>
24-26	Technology, Reading & Learning Difficulties Conference	San Francisco, CA	<a href="http://www.trld.com">www.trld.com</a>
30-2/2	Assistive Technology Industry Association Conference and Exhibition	Orlando, FL	<a href="http://www.atia.org/conf_2008.html">www.atia.org/conf_2008.html</a>

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## Calendar of Events (Continued From Page 9)

Date	Title of Event	Location	Website/Other Info.
<b>FEBRUARY 2008</b>			
2	Women in Science and Engineering Conference	Seattle, WA	<a href="http://www.engr.washington.edu/wise/conference.html">www.engr.washington.edu/wise/conference.html</a>
9-12	American Council on Education	San Diego, CA	<a href="http://www.aceannualmeeting.org">www.aceannualmeeting.org</a>
27-3/1	Learning Disabilities Association of America's Annual International Conference	Chicago, IL	<a href="http://www.ldanat1.org/conference">www.ldanat1.org/conference</a>
<b>MARCH 2008</b>			
8-12	National Association of Student Personnel Administrators Conference	Boston, MA	<a href="http://www.naspa.org">www.naspa.org</a>
14	Alliance for Technology Access 20 <sup>th</sup> Anniversary Gala	Los Angeles, CA	<a href="http://www.ataccess.org/20years.htm">www.ataccess.org/20years.htm</a>
27-29	5 <sup>th</sup> International Conference on Positive Behavior Support	Chicago, IL	<a href="http://conference.apbs.org">conference.apbs.org</a>
29-4/1	NSBA Annual Conference and Exposition	Orlando, FL	<a href="http://www.nsba.org">www.nsba.org</a>
<b>APRIL 2008</b>			
2-5	Council for Exceptional Children's Annual Convention and Expo	San Francisco, CA	<a href="http://www.cldinternational.org">www.cldinternational.org</a>
4	NFB 2008 Celebration	Baltimore, MD	<a href="http://www.nfb.org">www.nfb.org</a>
10-13	American Occupational Therapy Association's Annual Conference and Expo	Long Beach, CA	<a href="http://www.aota.org/nonmembers/area30">www.aota.org/nonmembers/area30</a>
29-5/2	Washington Association on Postsecondary Education and Disability	Leavenworth, WA	<a href="http://www.waped.org">www.waped.org</a>

Submit additional events, conferences, workshops, symposia, and seminars to Sabira Mohamed at [smohamed@aaas.org](mailto:smohamed@aaas.org)

### Request for Volunteers



#### *SESD NEEDS YOUR HELP!*

We are currently looking for volunteers to fill the following positions:

- President-Elect
- Secretary
- Treasurer

If you are interested in any of these positions or would like more information, please contact Laureen Summers at [lsummers@aaas.org](mailto:lsummers@aaas.org).

## Latest Books, Reviews and Reports

- Sabira Mohamed

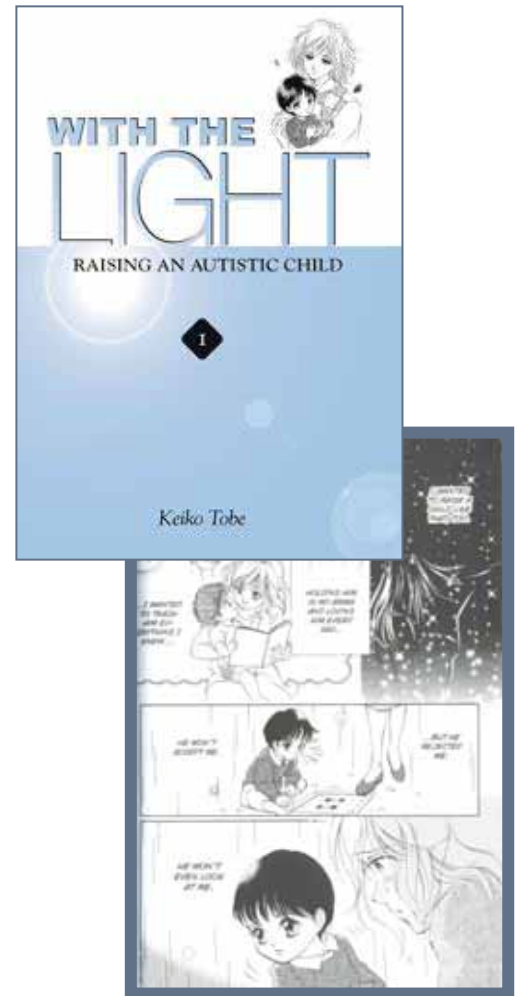
### With the Light: Raising an Autistic Child

Keiko Tobe, September 24, 2007 (translated)

[www.yenpublishing.com](http://www.yenpublishing.com)

Keiko Tobe's "With the Light" showcases an inspirational and heart-warming story for all ages via "manga" format (see note below). Born during the sunrise - an auspicious beginning - the Azumas' newborn son is named Hikaru, which means "light." But during one play date, his mother notices that her son is slightly different from the other children. In this alternately heartwarming and bittersweet tale, a young mother tries to cope with both the overwhelming discovery of her child's autism and the trials of raising him while keeping her family together. This is a story that resonates not only for those whose families have been affected by autism, but also for all past, present, and future parents.

"With the Light" received the Excellence Prize in the 8<sup>th</sup> Annual Japan Media Arts Festival in 2004. The 11-part series was adapted into a television drama which won several awards, including "Best Drama," at Japan's 41st Television Drama Academy Awards. Volume 2 will be available March 2008.



Note: The term "Manga" refers to comics originally published in Japan. They are typically published in black-and-white and are serialized in manga magazines. These are later republished in paperback books and in many cases, are animated (called an "anime"). Unlike other types of comics, manga can cover a vast range of topics and attract all ages and audiences. The growing popularity of manga in the U.S. over the years has resulted in an increase of translated manga works.



### The Science Teacher: Science for All

NSTA, March 2007

[www.nsta.org](http://www.nsta.org)

In its 12<sup>th</sup> special issue "Science for All," The Science Teacher features several articles of interest focusing on resources for students with disabilities. Among the pieces is a follow-up of last year's article entitled "Teaching Students with Learning Disabilities," featured on the Spring 2007 Goodnewsletter. The publication also looks at assistive technology in the inclusive science classroom.

Other features include "Scientific Discovery for All," which presents keys to developing and sustaining a successful research program for students, and a list of select "Outstanding Science Trade Books for Students K-12," published in 2006.

Photo (left) reprinted with permission of NSTA

These works are available for purchase by the publisher and/or through Amazon.com

## Opening Doors for Scientists with Disabilities



SCIENCE magazine has recently published a Business Office Feature focusing on careers and diversity entitled "Opening Doors for Scientists with Disabilities," which highlight several achieving programs and success stories. These programs are currently aiming to increase the number of individuals with disabilities in science and technology careers by removing barriers and changing attitudes.

Programs featured in the article include AAAS Entry Point!, University of Washington DO-IT, AccessSTEM, Incight, IBM, and NOAA.

Bonetta, Laura. "Opening Doors for Scientists with Disabilities." *Science* 16 November 2007, <http://www.sciencemag.org>.

### DO-IT Opens The Center for Universal Design in Education

University of Washington's Disabilities, Opportunities, Internetworking, and Technology (DO-IT) program has enhanced its AccessCollege resources for postsecondary faculty, staff and students with The Center for Universal Design (CUDE), opened September 2007. CUDE develops and collects Web-based resources to help educators apply universal design to all aspects of the educational experience: instruction, student services, information technology, and physical spaces.

The website ([www.washington.edu/doiit/CUDE](http://www.washington.edu/doiit/CUDE)) includes information on universal design in general and at the elementary, secondary, and postsecondary levels; links to projects exhibits, and conferences on universal design; information on resources and training, and more.

Combined with previous areas, all funded by the U.S. Department of Education, AccessCollege is now organized into five resource centers, including CUDE. The other centers include:

#### The Faculty Room

A space for faculty and academic administrators at postsecondary institutions to learn about how to create classroom environments and academic activities that maximize the learning of all students, including those with disabilities.

#### The Conference Room

A space for staff and administrators at postsecondary institutions to learn about how to create facilities, services, and resources that are accessible to all students, including those with disabilities.

#### The Board Room

A space for high-level administrators at postsecondary institutions to learn about how to create and facilitate the development of programs and services that are accessible to all students, including those with disabilities.

#### The Student Lounge

Resources to help students with disabilities prepare for and succeed in college.

### Outstanding Internship Opportunities for Students with Disabilities in Science and Engineering

**ENTRY POINT!**, a program of the American Association for the Advancement of Science (AAAS) offers outstanding paid, 10-week internships and semester co-ops in major companies and federal agencies throughout the United States, including NASA, IBM, NOAA, and Merck.

**ENTRY POINT!** is available to STUDENTS WITH DISABILITIES majoring in life sciences, physical sciences, computer sciences, engineering, mathematics, and other quantitatively-based fields (e.g. finance and economics).

Qualifying students must:

- ◆ Be full-time undergraduate or graduate students
- ◆ Be a Science, Mathematics, Engineering, Business, or Computer Science major
- ◆ Have a B average GPA (or higher)
- ◆ Be a U.S. citizen

For more information, contact: LAUREEN SUMMERS, Project on Science, Technology and Disability; AAAS, 1200 New York Avenue, NW; Washington, DC 20005, Phone: (202) 326-6649; e-mail: [Lsummers@aaas.org](mailto:Lsummers@aaas.org); or check out our website and apply online at

[www.entrypoint.org](http://www.entrypoint.org)



ADVANCING SCIENCE. SERVING SOCIETY.

## Excellence in the Classroom



The Future of Children's Spring 2007 journal focuses on "Excellence in the Classroom."

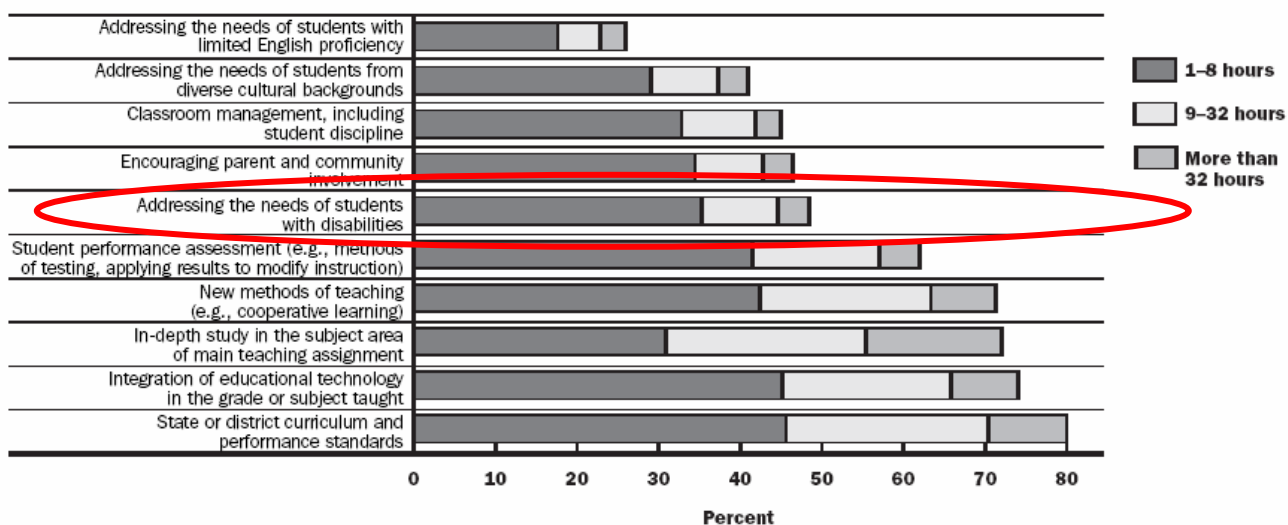
Concern about the overall quality of U.S. education, and in particular about the troublesome gaps in achievement for low-income and minority students, has led many policymakers and parents to demand reform of the educational system. But for reform to make a difference, it must penetrate the classroom and affect the quality of teaching. Almost everyone recognizes the importance of effective teachers, but it is much less clear how to improve the teaching workforce - both increasing the effectiveness of those already teaching and the recruitment of new, high-quality teachers.

Researchers have established that carefully designed public policies can increase the effectiveness of teachers improving student achievement. The articles in this volume explore key tools available to policy makers.

Among the questions the volume asks are:

- How do wages and working conditions both in teaching and in competing occupations influence the number and skills of people drawn to teaching?
- Can certification requirements effectively distinguish between good and bad teachers, and do the requirements drive away potentially good teachers or only the potentially bad?
- What types of professional development programs are most likely to improve teacher effectiveness?
- How do salaries and working conditions affect teacher recruitment, transfer, and turnover?
- What are the challenges and implications of implementing performance-based pay?
- What are the effects of teachers' unions on teacher quality and implementation of new policies?
- How can the unique problems - including poverty, working conditions, and labor markets - facing rural and urban school districts be addressed?
- What are the lessons to be learned from other countries - both developed and developing?

**Figure 1. Percentage of Teachers Choosing Selected Topics of Teacher Professional Development, 2000**



Source: National Center for Education Statistics, *Teacher Preparation and Professional Development: 2000*, NCES 2001-088 (U.S. Department of Education, 2001), table 2, p. 15.

Included in the journal is a table showing the percentage of teachers choosing selected topics of teacher professional development (see previous page). As the table shows, "generic" professional development topics, such as student diversity, classroom management, and encouraging parental involvement, were relatively less popular than more subject-matter-specific topics, such as state or district instructional policy, in-depth study in content areas, and student performance assessments. Other National Center for Education Statistics (NCES) data from the same period show that 59 percent and 73 percent of teachers report focusing on subject matter content and methods, respectively, during their professional development experiences in the past year. But the data also reveals that most teachers report that such experiences last eight hours or less. *Addressing the needs of students with disabilities* landed in the lower half of the table and most teachers spent less than 8 hours on professional development in that area.

Strengthening the teacher workforce is not a one-time policy initiative. The effort must be ongoing - or schools, districts, states, and even the federal government. The introduction of assessment-based accountability systems over the past two decades has yielded a rich harvest of data that can help practitioners and policymakers assess the effectiveness of policy initiatives, especially those that are implemented with an eye toward careful evaluation. Education policy would be well served if reform initiatives were designed from the outset with credible evaluation elements. Without careful evaluation, the nation will be continue to commit enormous resources to one of society's most important investments without any real analytic support.

"Excellence in the Classroom," The Future of Children, Vol. 17 No. 1 Spring 2007, [www.futureofchildren.org](http://www.futureofchildren.org)

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## INTERNATIONAL NEWS: Inclusive Education in Computer Science

Proceedings of the 12<sup>th</sup> Annual Conference on Innovation and Technology in Computer Science Education (ITICSE) included a special theme for 2007: Inclusive Education in Computer Science. Of particular interest are three papers that focus on Inclusive Education for Disabled Students.

### **E-learning Content Adaptation for Deaf Students**

F. Javier Bueno, Soledad Garcia, Reza Borrego, and J. Raul Fernandez del

Deaf students hardly ever finish higher studies. One of the biggest difficulties they have to face in studying for their degrees is reading comprehension. This paper presents a study about their needs when reading a text, and proposes several measures to alleviate this problem. The methodology proposed in this paper, when applied to adapt an e-learning Computing course, has achieved a promising improvement of the understanding level of this kind of student.

### **Studying Our Inclusive Practices: Course Experiences of Students with Disabilities**

Katherine Deibel

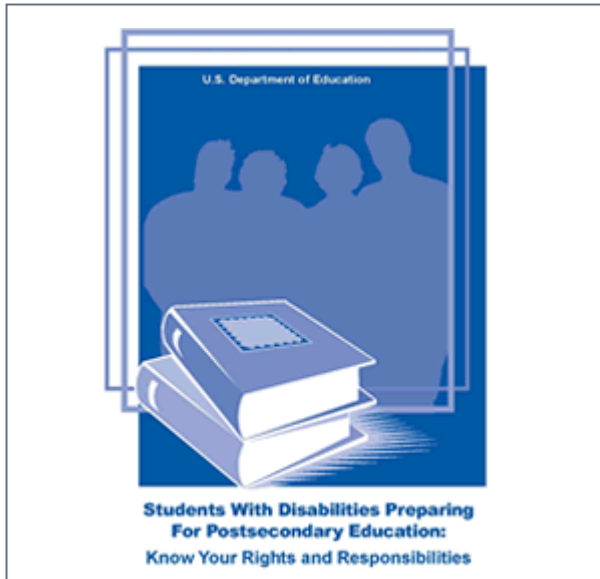
Students with disabilities can experience difficulty in receiving an education; inclusive education is an educational practice designed to ameliorate these problems. This paper presents the design for a study of the current inclusive practices in computer science courses. Challenges in studying the experiences of disabled students are discussed, and a methodology using semi-structured interviews and grounded theory is developed to address these difficulties. A pilot study involving students taking their first computing courses is also described.

### **Inclusion of Deaf Students in Computer Science Classes using Real-time Speech Transcription**

Richard Kheir and Thomas Way

Computers increasingly are prevalent in the classroom, with student laptops becoming the norm, yet some beneficial uses of this widespread technology are being overlooked. Speech recognition software is maturing, and possesses the potential to provide real-time note taking assistance in the classroom, particularly for deaf and hard of hearing students. This paper reports on a practical, portable and readily deployed application that provides a cost-effective, automatic transcription system with the goal of making computer science lectures inclusive of deaf and hard of hearing students. The design of the system is described, some specific technology choices and implementation approaches are discussed, and results of two phases of an in-class evaluation of the system are analyzed. Ideas for student research projects that could extend and enhance the system also are proposed.

## Students with Disabilities Preparing for Postsecondary Education: Know Your Rights and Responsibilities



More and more high school students with disabilities are planning to continue their education in postsecondary schools, including vocational and career schools, two- and four- year colleges, and universities. As a student with a disability, you need to be well informed about your rights and responsibilities as well as the responsibilities postsecondary schools have toward you. Being well informed will help ensure you have a full opportunity to enjoy the benefits of the postsecondary education experience without confusion or delay.

"Students with Disabilities Preparing For Postsecondary Education: Know Your Rights and Responsibilities" was first published in July 2002 and revised earlier this year by the U.S Department of Education Office of Civil Rights. This guide explains the rights and responsibilities of students with disabilities who are preparing to attend postsecondary schools. It also explains the obligations of a postsecondary school to provide academic adjustments, including auxiliary aids and services, to ensure the school does not discriminate on the basis of disability.

OCR enforces Section 504 of the Rehabilitation Act of 1973 (Section 504) and Title II of the Americans with Disabilities Act of 1990 (Title II), which prohibit discrimination on the basis of disability. Practically every school district and postsecondary school in the United States is subject to one or both of these laws, which have similar requirements. Although both school districts and postsecondary schools must comply with these same laws, the responsibilities of postsecondary schools are significantly different from those of school districts.

Moreover, you will have responsibilities as a postsecondary student that you do not have as a high school student. OCR strongly encourages you to know your responsibilities and those of postsecondary schools under Section 504 and Title II. Doing so will improve your opportunity to succeed as you enter postsecondary education.

The following questions and answers provide more specific information to help you succeed.

**As a student with a disability leaving high school and entering postsecondary education, will I see differences in my rights and how they are addressed?**

Yes. Section 504 and Title II protect elementary, secondary and postsecondary students from discrimination. Nevertheless, several of the requirements that apply through high school are different from the requirements that apply beyond high school. For instance, Section 504 requires a school district to provide a free appropriate public education (FAPE) to each child with a disability in the district's jurisdiction. Whatever the disability, a school district must identify an individual's education needs and provide any regular or special education and related aids and services necessary to meet those needs as well as it is meeting the needs of students without disabilities.

Unlike your high school, your postsecondary school is not required to provide FAPE. Rather, your postsecondary school is required to provide appropriate academic adjustments as necessary to ensure that it does not discriminate on the basis of disability. In addition, if your postsecondary school provides housing to nondisabled students, it must provide comparable, convenient and accessible housing to students with disabilities at the same cost.

Other important differences you need to know, even before you arrive at your postsecondary school, are addressed in the remaining questions.

**May a postsecondary school deny my admission because I have a disability?**

No. If you meet the essential requirements for admission, a postsecondary school may not deny your admission simply because you have a disability.

(Continued Next Page)

**Do I have to inform a postsecondary school that I have a disability?**

No. However, if you want the school to provide an academic adjustment, you must identify yourself as having a disability. Likewise, you should let the school know about your disability if you want to ensure that you are assigned to accessible facilities. In any event, your disclosure of a disability is always voluntary.

**What academic adjustments must a postsecondary school provide?**

The appropriate academic adjustment must be determined based on your disability and individual needs. Academic adjustments may include auxiliary aids and modifications to academic requirements as are necessary to ensure equal educational opportunity. Examples of such adjustments are arranging for priority registration; reducing a course load; substituting one course for another; providing note takers, recording devices, sign language interpreters, extended time for testing and, if telephones are provided in dorm rooms, a TTY in your dorm room; and equipping school computers with screen-reading, voice recognition or other adaptive software or hardware.

In providing an academic adjustment, your postsecondary school is not required to lower or effect substantial modifications to essential requirements. For example, although your school may be required to provide extended testing time, it is not required to change the substantive content of the test. In addition, your postsecondary school does not have to make modifications that would fundamentally alter the nature of a service, program or activity or would result in undue financial or administrative burdens. Finally, your postsecondary school does not have to provide personal attendants, individually prescribed devices, readers for personal use or study, or other devices or services of a personal nature, such as tutoring and typing.

**If I want an academic adjustment, what must I do?**

You must inform the school that you have a disability and need an academic adjustment. Unlike your school district, your postsecondary school is not required to identify you as having a disability or assess your needs.

Your postsecondary school may require you to follow reasonable procedures to request an academic adjustment. You are responsible for knowing and following these procedures. Postsecondary schools usually include, in their publications providing general information, information on the procedures and

contacts for requesting an academic adjustment. Such publications include recruitment materials, catalogs and student handbooks, and are often available on school Web sites. Many schools also have staff whose purpose is to assist students with disabilities. If you are unable to locate the procedures, ask a school official, such as an admissions officer or counselor.

**When should I request an academic adjustment?**

Although you may request an academic adjustment from your postsecondary school at any time, you should request it as early as possible. Some academic adjustments may take more time to provide than others. You should follow your school's procedures to ensure that your school has enough time to review your request and provide an appropriate academic adjustment.

**Do I have to prove that I have a disability to obtain an academic adjustment?**

Generally, yes. Your school will probably require you to provide documentation that shows you have a current disability and need an academic adjustment.

**What documentation should I provide?**

Schools may set reasonable standards for documentation. Some schools require more documentation than others. They may require you to provide documentation prepared by an appropriate professional, such as a medical doctor, psychologist or other qualified diagnostician. The required documentation may include one or more of the following: a diagnosis of your current disability; the date of the diagnosis; how the diagnosis was reached; the credentials of the professional; how your disability affects a major life activity; and how the disability affects your academic performance. The documentation should provide enough information for you and your school to decide what is an appropriate academic adjustment.

Although an individualized education program (IEP) or Section 504 plan, if you have one, may help identify services that have been effective for you, it generally is not sufficient documentation. This is because postsecondary education presents different demands than high school education, and what you need to meet these new demands may be different. Also in some cases, the nature of a disability may change.

If the documentation that you have does not meet the postsecondary school's requirements, a school official should tell you in a timely manner what additional

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documentation you need to provide. You may need a new evaluation in order to provide the required documentation.

#### Who has to pay for a new evaluation?

Neither your high school nor your postsecondary school is required to conduct or pay for a new evaluation to document your disability and need for an academic adjustment. This may mean that you have to pay or find funding to pay an appropriate professional for an evaluation. If you are eligible for services through your state vocational rehabilitation agency, you may qualify for an evaluation at no cost to you. You may locate your state vocational rehabilitation agency through the following Web page: <http://www.jan.wvu.edu/SBSES/VOCREHAB.HTM>.

#### Once the school has received the necessary documentation from me, what should I expect?

The school will review your request in light of the essential requirements for the relevant program to help determine an appropriate academic adjustment. It is important to remember that the school is not required to lower or waive essential requirements. If you have requested a specific academic adjustment, the school may offer that academic adjustment or an alternative one if the alternative would also be effective. The school may also conduct its own evaluation of your disability and needs at its own expense.

You should expect your school to work with you in an interactive process to identify an appropriate academic adjustment. Unlike the experience you may have had in high school, however, do not expect your postsecondary school to invite your parents to participate in the process or to develop an IEP for you.

#### What if the academic adjustment we identified is not working?

Let the school know as soon as you become aware that the results are not what you expected. It may be too late to correct the problem if you wait until the course or activity is completed. You and your school should work together to resolve the problem.

#### May a postsecondary school charge me for providing an academic adjustment?

No. Furthermore, it may not charge students with disabilities more for participating in its programs or activities than it charges students who do not have disabilities.

#### What can I do if I believe the school is discriminating against me?

Practically every postsecondary school must have a person—frequently called the Section 504 Coordinator, ADA Coordinator, or Disability Services Coordinator—who coordinates the school's compliance with Section 504 or Title II or both laws. You may contact this person for information about how to address your concerns.

The school must also have grievance procedures. These procedures are not the same as the due process procedures with which you may be familiar from high school. However, the postsecondary school's grievance procedures must include steps to ensure that you may raise your concerns fully and fairly and must provide for the prompt and equitable resolution of complaints.

School publications, such as student handbooks and catalogs, usually describe the steps you must take to start the grievance process. Often, schools have both formal and informal processes. If you decide to use a grievance process, you should be prepared to present all the reasons that support your request.

If you are dissatisfied with the outcome from using the school's grievance procedures or you wish to pursue an alternative to using the grievance procedures, you may file a complaint against the school with OCR or in a court.

If you would like more information about the responsibilities of postsecondary schools to students with disabilities, read the OCR brochure *Auxiliary Aids and Services for Postsecondary Students with Disabilities: Higher Education's Obligations Under Section 504 and Title II of the ADA*, <http://www.ed.gov/ocr/docs/auxaids.html>.

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*Students with disabilities who know their rights and responsibilities are much better equipped to succeed in postsecondary school. We encourage you to work with the staff at your school because they, too, want you to succeed. Seek the support of family, friends and fellow students, including those with disabilities. Know your talents and capitalize on them, and believe in yourself as you embrace new challenges in your education.*

U.S. Department of Education, Office for Civil Rights, *Students with Disabilities Preparing for Postsecondary Education: Know Your Rights and Responsibilities*, Washington, D.C., 2007.

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## SESD Membership Application

SESD is open to teachers, administrators, parents or anyone else interested in science education for students with disabilities. Benefits of membership include a subscription to the Newsletter, published semi-annually, information regarding the annual SESD meeting, an annual journal (Journal of Science Education for Students with Disabilities), and a member directory.

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