Introduction

By Joe Reichle, PhD, and Phil Sievers, EdS

Minnesota LEND Program
The Minnesota LEND (Leadership Education in Neurodevelopmental and Related Disabilities) Program is an interdisciplinary leadership training program spanning 12 disciplines across the University of Minnesota and is funded by the Maternal Child Health Bureau (MCHB) of the U.S. Department of Health and Human Services.

With the formation of the Minnesota LEND program our university community now has the opportunity to have increased training, engagement, and support for children with autism spectrum disorders (ASD) and other neurodevelopmental disabilities. The two academic disciplines within the U of M have collaborated to create a unique and powerful learning experience for students. LEND fellows are graduate and post-graduate students selected for their outstanding skills and commitment to improving the quality of life for children with neurodevelopmental disabilities and their families.

The Minnesota LEND’s interdisciplinary training program curriculum incorporates both didactic, research and practicum experiences using a combination of activities located in both clinical and community training sites.

LEND Brief
Twice a year LEND publishes LEND Brief. This publication is written for a general audience that includes but is by no means limited to parents, practitioners representing the 12 academic disciplines who contribute trainees to LEND, teachers and related education personnel, health professionals, advocates and administrators. In each publication we will focus on a portion of the needs and related service delivery mechanisms in the area of education, health and public health that require an interdisciplinary team. Articles appearing in LEND Brief are intended to inform the readership about ongoing activities within a segment of the service delivery system or research and practice that should inform practice, policy or research in the area of neurodevelopmental disabilities.

Focus of the inaugural issue of LEND Brief
In 2006, the Institute on Community Integration devoted an issue of its publication Impact to current education practices applicable to students in Minnesota. At that time approximately one of every 150 children was identified with an ASD. The latest
estimate from the Center for Disease Control now advises that the incidence rate is approximately one in 100. ASDs is an area of disability that has been popularized by television, movies, and print media. For families and educators our knowledge of this cluster of neurodevelopmental disabilities continues to grow. The speed with which we are learning continues to open an increasing number of avenues of inquiry.

The initial issue of LEND Brief focuses on education service delivery issues and practices in the delivery of education services to individuals with ASDs. The first article addresses ensuring the competence of educators serving children with ASDs. In 2012, Minnesota launched two new special education teaching licenses for educators serving individuals with ASD. Lynn Brushnahan-Stansberry, PhD, a faculty member and director of the ASD Master of Arts and certificate program at St. Thomas University was a participant in the process that resulted in the new licensure regulations and offers an overview of the license along with a brief presentation of other state's status with respect to ASD licensure.

The next article was authored by Ellen Frazonne, PhD, who is a specialist at the Waisman Center-University of Wisconsin-Madison. She outlines a federally funded training grant designed to influence the implementation of evidence-based practices with school aged children with ASDs. A side-bar to this article describes evidence based practice materials that can be accessed on the OCALI website. Tami Childs, PhD, coordinator of the Minnesota Low Incidence ASD Project and Michelle Glynn, MA, Minneapolis public school educator, authored the companion presentation describing the implementation of the National Professional Development Center activities in a public school in Minnesota. This article provides an example of a learner who benefitted from these activities.

Our third article is authored by Timothy R. Moore, PhD, University of Minnesota, Maryellen Daston, PhD, Project SEARCH, Cincinnati Children's Hospital Medical Center, Jim Dolce (self-advocate), Sandy Dolce (parent) and Jayne Spain, MA, Minnesota Department of Education. This article highlights an innovative program addressing transition from school to work. Cincinnati Children's Hospital Medical Center (CCHMC) adopted a major diversity initiative calling for healthcare organizations to “lead their communities in increasing employment opportunities for qualified persons with disabilities and advocate on behalf of their employment to other organizations.” Erin Riehle (Director of Disability Services and Project SEARCH at CCHMC) and Susie Rutkowski (Project SEARCH Co-Director and Educational Specialist) were inspired by this initiative and acted on the need to develop lasting relationships between schools, disability service providers, and community businesses as a foundation for meaningful job training for students who otherwise would likely not receive access to coordinated job training. This project has been implemented in Minnesota. This article outlines components of the training and discusses an example of a learner who is a beneficiary of the program.

Our final article was authored by Teri Estrem, PhD, St. Cloud State University. Dr. Estrem describes the growing numbers of Non-English speaking minority children and families in Minnesota communities and schools. Many of these children, particularly those with disabilities, exhibit some of the lowest academic performance on statewide tests that, originally, were required by No Child Left Behind. However, to date, there has been limited empirical scrutiny of the prevalence of English language learners (ELL) with disabilities (particularly with respect to their age of entry into special education services). Using data from the Minnesota Department of Education, Dr. Estrem’s brief report explores trends in participation rates of children who received services under the special education categorical label of autism in Minnesota between 2001 and 2008, with a focus on English language learners. Results revealed a dramatic increase in children in the autism special education category for English, Spanish, Somali, and Hmong speakers over the past decade, as well as differences in the age at which they first entered the autism category of special education. Dr. Estrem’s article focuses on challenges presented from the identified disparities in academic performance.

Conclusion

We hope you enjoy this first issue of LEND Brief and follow LEND activities on the website, lend.umn.edu. We intend to post information about upcoming issues of LEND Brief that focus on health services for children with neurodevelopmental disabilities. If you have comments regarding this publication please direct them to Amy Hewitt, PhD, or Joe Reichle, PhD, at <fond0030@umn.edu>

Joe Reichle, PhD, is research director of Minnesota LEND, professor of Departments of Educational Psychology and Speech-Language-Hearing Sciences, and director of Autism Spectrum Disorder Certificate Program at the University of Minnesota.

Phil Sievers, EdS, is a specialist for Autism Spectrum Disorders, Positive Behavioral Interventions and Supports Team, and Special Education Policy at the Minnesota Department of Education.
Better serving students with autism in Minnesota by preparing special education teachers in a hybrid model of disability specific and cross-categorical system

By L. Lynn Stansberry Brusnahan, PhD

Minnesota conducted a comprehensive review of the licensure structure for serving students with exceptionalities. This review resulted from the community relating concerns to the Board of Teaching (BOT) that the unique needs of the significant and growing number of students with ASDs were not being met within the current license structure. In Minnesota’s current licensure system, students with ASDs are served by teachers who have been prepared in another disability area. As a result, Minnesota elected to examine all special education teaching licenses. The BOT recommended a hybrid model of disability specific and cross-categorical generalist special education licenses. These newly approved licenses will prepare teachers to meet the needs of all students with exceptionalities, including those with ASDs.

The number of students with disabilities continues to grow at a greater rate than both the population and school enrollment (U.S. Department of Education, 2000). There has been a particularly substantial increase in students who have challenges in social interaction; verbal and nonverbal communication; and behaviors such as engaging in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and atypical responses to sensory experiences. Students with these characteristics meet eligibility for special education services for autism, which became a disability category through the Individuals with Disabilities Education Act (IDEA) in 1990. A study by the Centers for Disease Control and Prevention found the prevalence of ASD has risen to an average of one out of every 100 American children, and almost one in 70 boys (2009). In Minnesota, there was community concern about the current teacher licenses’ ability to meet the expectations for student academic achievement mandated by the reauthorization of IDEA in 2004, due to the significant needs of the growing number of students with autism (Autism Society of Minnesota, 2010).

Teacher license requirements vary greatly across states. Many states have disability specific licenses or endorsements, while others serve students through generalist and cross or multi-categorical types of license structures. Some states serve children based on the range of the student’s needs (i.e. mild to moderate or moderate to severe) and other states have age or grade specific categories of licenses. In Minnesota’s current license system, students with ASDs are served by educators who have been prepared in another disability area as there are no autism specific educator requirements. According to the National Research Council (NRC), educating students with ASDs with their pervasive needs across multiple areas can be challenging especially for teachers who have received no formal education in ASD (2001).

Teacher education programs prepare pre-service teachers to meet the specific needs of the population of students based on the license requirements in the area of the teacher’s concentration. In a study by Nougaret, Scruggs, and Mastropieri, Minnesota conducted a comprehensive review of the licensure structure for serving students with exceptionalities. This review resulted from the community relating concerns to the Board of Teaching (BOT) that the unique needs of the significant and growing number of students with ASDs were not being met within the current license structure. In Minnesota’s current licensure system, students with ASDs are served by teachers who have been prepared in another disability area. As a result, Minnesota elected to examine all special education teaching licenses. The BOT recommended a hybrid model of disability specific and cross-categorical generalist special education licenses. These newly approved licenses will prepare teachers to meet the needs of all students with exceptionalities, including those with ASDs.

In Minnesota’s current license system, students with ASDs are served by educators who have been prepared in another disability area as there are no autism specific educator requirements.
Minnesota’s license review process

In 2008, the Minnesota Board of Teaching (BOT) launched an initiative relating to special education licensure. The objectives for this work were two-fold: 1) to conduct a comprehensive review of Minnesota’s licensure structure for serving students with exceptionalities, including both disabilities and gifts; and 2) to make recommendations to the BOT regarding the preparation of special education teachers (Balmer, 2011). Three phases of work were completed to develop recommendations to the BOT.

During Phase I, representatives from stakeholder organizations, convened to review the current state licensure standards and determine whether considering different standards or models should be considered. The outcome of Phase I was a proposal for a revised licensure structure model.

During Phase II, the work of Phase I was expanded to include additional stakeholders with targeted expertise in each of the exceptionality areas. Eleven work groups worked to flesh out the model proposed by the Phase I group and to provide draft recommendations and language for competencies (Balmer, 2011).

During Phase III, the Phase I group reconvened to review the recommendations from the Phase II sub-groups and developed recommendations for licensure, depicted in Table 1, that were directed to the BOT. The review process then went into a technical writing phase, to ensure consistency, alignment, and cohesion across the rule drafts.

During the technical writing phase, a team ensured that all of the standards within licensure fields built upon the knowledge base from the standards in the core skills for special education teachers. Additionally, literacy standards were added to the core skill requirements for all special education teachers requiring new candidates recommended for licensure in special education to meet statutory requirements regarding comprehensive, scientifically based reading instruction (Minnesota Administrative Rule 8710.3200, 2009; Minnesota Statute 122A.09, 2010). Emphasis was given to include knowledge and skills regarding the impact of co-existing conditions, grade level content standards, statewide assessment requirements, universal design for learning, assistive technology, diversity, progress monitoring, early intervention, and transitions (Balmer, 2010).

The BOT received the rule drafts from the technical writing team and entered a rulemaking initiative to propose the changes. A period of time was also set aside to share the drafts with as many stakeholders as possible and receive input during comment periods. This allowed the BOT to gather critical feedback and determine whether changes were needed in the new language (Balmer, 2011).

The recommendations that came out of the review process were to —

- Update existing special education licenses to include competencies consistent with current professional standards, and
- Establish two new licenses in the state including —
  - An ASD disability specific license, and
  - An academic and behavioral strategist license.

### Table 1: Approved Minnesota special education licenses

<table>
<thead>
<tr>
<th>Area</th>
<th>Range</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic and behavioral strategist</td>
<td>Kindergarten–21</td>
<td>New</td>
</tr>
<tr>
<td>Autism spectrum disorders</td>
<td>Birth–21</td>
<td>New</td>
</tr>
<tr>
<td>Blind / visually impaired</td>
<td>Birth–21</td>
<td>Revised</td>
</tr>
<tr>
<td>Deaf / hard of hearing</td>
<td>Birth–21</td>
<td>Revised</td>
</tr>
<tr>
<td>Oral / aural deaf education</td>
<td>Birth–21</td>
<td>Revised</td>
</tr>
<tr>
<td>Developmental adapted physical education (not an initial license)</td>
<td>PreKindergarten–21</td>
<td>Revised</td>
</tr>
<tr>
<td>Developmental disabilities</td>
<td>Kindergarten–21</td>
<td>Revised</td>
</tr>
<tr>
<td>Early childhood special education</td>
<td>Birth–21</td>
<td>Revised</td>
</tr>
<tr>
<td>Emotional / behavioral disorders</td>
<td>Kindergarten–21</td>
<td>Revised</td>
</tr>
<tr>
<td>Learning disabilities</td>
<td>Kindergarten–21</td>
<td>Revised</td>
</tr>
<tr>
<td>Physical and health disabilities</td>
<td>Birth–21</td>
<td>Revised</td>
</tr>
</tbody>
</table>

Areas where there is no specific license or endorsement recommended —
- Severely multiply impaired
- Other health disabilities
- Traumatic brain injury
Establishing an autism spectrum disorder license

The Phase II group assigned to develop ASD teacher competencies examined what was currently available nationally and at the state level. The workgroup began with a national review of evidence based practices in the field of ASD and professional competencies. The group then examined state resources, which included proposed autism competencies; administrative rule, Institute of Higher Education programs; and the state performance plan. Lastly, Phase II activities involved a review of other state autism teacher requirements.

Evidence based practices

IDEA states that special education services should be individualized and appropriate to a student’s needs requiring teachers to understand specific disability areas and be able to effectively use scientifically based intervention, also known as evidence based strategies to ensure high quality instruction. Utilizing evidence based strategies involves training and knowledge of autism specific programming. Training on evidence based practices in ASD was not currently being provided in great depth in other disability specific license programs within Minnesota. Evidence based interventions were identified through the work of the National Autism Center at http://www.autismcenter.org, the National Professional Development Center on ASD at http://autismvd.org, and the U.S. Department of Education What Works Clearinghouse at http://ies.ed.gov/ncee/wwc/ and utilized to compose the license standards.

National professional competencies

The competency review included an examination of the Standards for Teachers of Individuals with Developmental Disabilities/Autism developed in 2009 by the Council for Exceptional Children in conjunction with the Autism Society of America (ASA). These competencies began in 2007 as a draft developed by the Network of Training and Technical Assistance Programs (NATTAP). These professional competencies were incorporated into the CEC’s resource on highly qualified teachers titled What Every Special Educator Needs to Know and endorsed by the National Council for Accreditation of Teacher Education (NCATE) (2009). These professional competencies contain the knowledge and skill base that professionals entering practice or assuming advanced roles should possess to practice effectively with student with ASD.

State proposed competencies

The Phase II group also examined the Minnesota proposed competencies for special education teachers working with students with ASD. The Minnesota Autism Network developed these competencies in 2003 in response to the statewide need for specialized professional development for autism teachers. These competencies were modeled on the CEC 2000 Common Core Knowledge and Skill for Beginning Education Teachers and are consistent with current promising practices and research. One of the purposes of the Minnesota proposed competencies was to influence the development of coursework at the state’s colleges and universities.

Minnesota administrative rule

The Phase II workgroup studied Minnesota Administrative Rule 3525.1325 that states that the Individualized Education Plan (IEP) team should include an individual with autism “expertise and experience” (2007). To address this requirement, Minnesota Institutes of Higher Education offer ASD coursework including certification programs.

Utilizing evidence based strategies involves training and knowledge of autism specific programming.

Institutions of higher education

The workgroup examined the ASD programming offered by IHEs within the state. Eight Minnesota IHEs offer coursework leading to a certificate to prepare teachers with a greater understanding of autism and to provide advanced, specialized ASD training. Although these certificates do not lead to licensure, the coursework enhances the knowledge and skills of teachers working in school settings. Curriculum in the ASD certificate programs is currently aligned with the Minnesota proposed ASD educator competencies. These certificate requirements offered at both undergraduate and graduate levels are not required nor recognized officially by the BOT. Many school districts across the state, however, recognize the significance of teachers with this additional training and an autism certificate can be found on many job postings as being desired for a special education position.

State performance plan

Also within the state, the Phase II group reviewed the Minnesota State Performance Plan (2009) that is required by the 2004 reauthorized IDEA. Currently, the state plan includes a monitoring priority indicator.
that students demonstrate improvement in positive social-emotional skills (including social relationships), acquisition and use of knowledge and skills (including language/communication), and use of appropriate behavior to meet their needs. These are core deficits in autism. According to the NRC, many qualified special education teachers have little experience or knowledge about the limited social skills, specific communication challenges, and atypical behaviors of children with ASD. The NRC found that even many educators with solid training in general special education have had little or no instruction in evidence based strategies such as applied behavior analysis or the use of physical structure and visual supports (2001).

Other state activities
The group referenced several sources that have collected information on states that offer ASD specific teacher requirements. These include —

- National Association of State Directors of Special Education (NADSE), 2005
- National Comprehensive Center for Teacher Quality, 2011
- National Early Childhood Technical Assistance Center, 2008

The identified states include Delaware, Florida, Michigan, Nevada, and West Virginia.

Delaware and Florida report that their autism endorsements function exclusively as an add-on to certification in special education. Michigan, West Virginia and Nevada offer autism specific endorsements that function as either a “stand alone” or “add-on” license. Both West Virginia and Nevada reported that the autism endorsement most commonly functions as an add-on. Three states reported that the autism specific requirements were necessary to be a “highly qualified” teacher within certain contexts. Michigan requires all educators teaching in autism programs to have an endorsement. Nevada requires an endorsement when 51 percent or more of a teacher’s caseload consists of students with autism. West Virginia requires that all teachers teaching students with autism, in either generic special education classrooms or special classrooms for students with autism, have an endorsement. Delaware did not have autism endorsement requirements.

Drawbacks to licensure
The five states reported a number of potential drawbacks to having the autism specific requirements but the NASDSE study did not cite the evidence that they used to come to this conclusion. The states felt that the requirements for ASD specialization could create an additional burden by requiring some teachers to possess multiple endorsements. Even with the ASD requirements and an increasing availability of IHE programs offering necessary coursework, states reported that recruitment and retention of adequately prepared personnel remained a challenge, especially in rural areas. A school of opinion commonly expressed was that the ASD requirements could ultimately contribute to teacher shortage in states where the endorsement is a requirement to be highly qualified. The NASDSE study stated that some speculated that the additional teacher requirements could create more specialized programs because if a teacher has an endorsement, it is easier to cluster all students with autism on one educator’s caseload which, in turn, may have a propensitity to result in a less inclusive educational experience (2005).

Benefits to licensure
The five states reported a number of benefits to having the autism specific requirements but once again did not cite the evidence that they used to come to this conclusion. Most noted a more qualified, better prepared workforce for meeting the academic and social needs of students with autism. The states felt coursework leading to the endorsement exposed educators to a wide range of strategies for working with students with autism and a heightened level of awareness regarding the unique characteristics associated with this disability area. The training that teachers received from IHE programs was stated to benefit all students with exceptionalities, not just students with autism. Some speculated, although without evidence, that the personnel preparation associated with the endorsement resulted in keeping more students with autism in general education classrooms.

While the five states highlighted in the NASDSE study described both positives and negatives relating to the autism specific requirements, most seem to believe that the benefits have outweighed the barriers and challenges – particularly by producing a more highly skilled workforce (NASDSE, 2005).

After the Phase II workgroup completed their national and state review, they developed competencies that include the knowledge and skill required of teachers to ensure students with ASD receive an appropriate education. The competencies take into consideration the wide
range of intelligence, social abilities, communication skills, and behaviors associated with ASD. In addition to addressing the need for teachers qualified to educate students with ASD with more significant needs within a disability specific license, the state also reviewed how to meet the needs of students with ASD with mild to moderate needs through a generalist cross categorical license.

### Establishing an academic and behavioral strategist license

Many states have gone to generalist or cross or multi-categorical license structures to address some of the teacher shortage challenges and the increasing numbers of students with special needs. Minnesota found that the professionals they brought together to review the current special education licenses felt that the state disability specific licensing structure was providing students a teacher who understood their disability area and could best meet their individual needs. One concern with the disability specific license structure, however, was that due to teacher shortages in some disability area, this structure was contributing to teachers working with students outside of their knowledge area. Careful examination was done by the workgroups about what preparation might look like of their base of knowledge and skill or license area. Thus, Minnesota developed a new license titled Academic and Behavioral Strategist.

The scope of practice for the Academic and Behavioral Strategist authorizes teachers to provide evaluation and specially designed instruction to eligible students with disabilities from kindergarten through age 21 who have a range of mild to moderate needs in the areas of academics, behavior, social, emotional, communication, and functional performance (Balmer, 2011). These students come from the primary disability areas of ASD, developmental cognitive delays, emotional or behavioral disorders, other health disorders, and specific learning disabilities. This teacher is not prepared to serve needs beyond those that are moderate in these disability areas. As illustrated in Table 2, a continuing license as an Academic and Behavioral Strategist may be renewed only after the teacher demonstrates holding or being recommended for licensure in one of the disability specific licensure fields part of the ABS license. This recommendation was to contribute to the expertise of educators and ensure that there were teachers prepared to serve students who had needs beyond those that are moderate in these disability areas. The proposed competencies can be viewed on the BOT Minnesota Department of Education at http://www.education.state.mn.us.

### Table 2: Proposed Minnesota licensure structure

<table>
<thead>
<tr>
<th>SEP</th>
<th>Core</th>
<th>Initial special education</th>
<th>Add on</th>
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<tbody>
<tr>
<td></td>
<td>Core skills special education</td>
<td>Academic behavior strategist</td>
<td>Autism spectrum disorder</td>
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<tr>
<td></td>
<td>Dear or hard of hearing</td>
<td>Developmental disabilities</td>
<td></td>
</tr>
<tr>
<td>SEP</td>
<td>Standards of effective practice</td>
<td>Early childhood special education</td>
<td>Emotional behavioral disorders</td>
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<tr>
<td>Core skills special education</td>
<td>Oral / aural</td>
<td>Learning disabilities</td>
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<tr>
<td>Core skills special education</td>
<td>Developmental disabilities</td>
<td>Learning disabilities</td>
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<td>Learning disabilities</td>
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<tr>
<td>Core skills special education</td>
<td>Emotional behavioral disorders</td>
<td>Physical and health disabilities</td>
<td></td>
</tr>
<tr>
<td>Core skills special education</td>
<td>Learning disabilities</td>
<td>*Developmental adapted physical education</td>
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</table>

*With the exception of DAPE, all licenses could be earned as an initial license, which requires the completion of the Standards of Effective Practice and the Core Skills.

Continued on page 7
**Conclusion**

The cost of insufficient training is very high to the children and their families when the students’ needs are not met as there can be long term and significant problems with schools, family disruption, and the student. Minnesota in their revision process has approved rules to ensure that students with ASD’s needs are met. The new and revised licenses will strengthen Minnesota’s teacher preparation in the area of ASD and ultimately will have a powerful impact on all special education students. Minnesota, through these revisions will meet the requirements of the Individuals with Disabilities Education Improvement Act of 2004 that requires that all public elementary and secondary special education teachers be “highly qualified” as special education teachers.

Lynn Brushnahan-Stansberry, PhD, is a faculty member and director of the ASD Master of Arts and certificate program at St. Thomas University.

**References**


The National Professional Development Center on Autism Spectrum Disorders (NPDC) was designed to help motivated and committed professionals in the public schools apply best practices for children with ASD in their classrooms. In their search for best practices, these professionals often ask questions that are difficult to answer: What are the best practices? Who decides that? How can general education public school teachers, or other school-based professionals, learn to use the practice? How can teachers know if they are using a practice correctly? How can teachers measure its effectiveness in their classrooms? How can teachers apply a practice to the IEP goals as written? What does a high quality education program look like for students with ASD?

These questions are less about the skills of the teaching staff and more about the large amount of disparate information scattered throughout the educational literature. First, the information lacked integration and synthesis; the research was not organized into a coherent body of information. Second, there was a lack of consensus in the field about definitions of an evidence-based practice in ASD. Finally, the research on ASD was published in many different journals, in technical language inaccessible to most teachers, and with too little information in the articles for teachers to be able to replicate the practice in a classroom.

When the U. S. Department of Education issued a request for proposals in the fall of 2006, a team of researchers and educators from the Frank Porter Graham Child Development Institute at the University of North Carolina at Chapel Hill, the Waisman Center at the University of Wisconsin - Madison, and the M.I.N.D. Institute at the University of California Davis saw an opportunity to address the questions raised by teachers and other professionals. They conceptualized a possible approach to answering these questions by developing a professional development/coaching model at the state level that would —

- Support local school districts in providing high quality education and early intervention to children and youth with ASD based on empirically tested and supported educational practices;
- Support teamwork between families and school personnel in educational planning and programming for children;
- Develop needed assessment tools and self-instructional materials from the highest quality educational approaches in ASD, package them in multiple formats (print, internet, video), and encourage school adoption of these practices and procedures for ongoing evaluation of student progress; and
- Develop a high level of training and implementation expertise combined with NPDC resources so that state-level training teams could continue to train and support new sites in their state.

**Identifying and creating needed resources**

Our first task as a center focused on identifying the instructional or intervention practices that had been demonstrated in the scientific literature as effective with children with ASD. These resources were not already available for us to use, so NPDC researchers set about addressing these areas in a systematic way.

For a practice to be classified as evidence-based, it had to be shown to lead to positive changes in behavior in (1) at least two acceptable experimental or quasi-experimental design studies, (2) five single case design studies conducted by a minimum of three different researchers, or (3) a minimum of one experimental study and a minimum of three single case design studies.

From this review, NPCD investigators identified 24 practices that had sufficient research studies to be classified as evidence-based, which are listed below —

**Practices with confirmed evidence base for individuals with ASD (10/24/2008)**

- Antecedent-based intervention
- Computer-aided instruction
- Differential reinforcement
- Discrete trial training
- Extinction
- Functional behavior assessment
- Functional communication training
- Naturalistic interventions
- Parent-implemented intervention
- Peer meditated instruction/ intervention
- PECS
- Pivotal response training
- Response interruption/redirection
- Self-management
• Social skills training
• Social stories
• Stimulus control/environment modification
• Structured work systems
• Video modeling
• Visual supports
• VOCA/SGD (speech gen. devices)

Many of these practices are based on applied behavior analysis principles. There are basic behavioral interventions, such as reinforcement or prompting, as well as more complex practices, such as peer-mediated intervention or self-management, that include basic behavioral features as part of the overall practice. Also, there is a cluster of practices (i.e., functional behavior assessment, redirection, extinction, antecedent-based interventions, differential-reinforcement of other behavior, functional communication training) that focus on building more adaptive skills while reducing challenging behavior, which can provide the foundation for a system of positive behavior management. Some practices come from frameworks other than applied behavior analysis (i.e., social narratives, speech generating devices, visual supports) and have sufficient research to qualify as being evidence-based.

Professional development materials
The National Professional Development Center on ASD has developed free, publically available materials to support teachers and other team members in their implementation of evidence-based practices. The materials are available in two formats, and on two different websites.

Evidence-based practice briefs
Evidence-based practice (EBP) briefs have been developed for all 24 identified evidence-based practices. The can be found at the NPDC website: http://autismpdc.fpg.unc.edu. An evidence-based practice brief consists of the following core components —

• Overview — A general description of the practice and how it can be used with learners with ASDs.
• Step-by-step directions for implementation — Explicit step-by-step directions detailing exactly how to implement a practice, based on the research articles identified in the evidence base.
• Implementation checklist — The implementation checklist offers a way to document the degree to which practitioners are following the step-by-step directions for implementation, which are based on the research articles identified in the evidence base.
• Evidence base — The list of references that demonstrate that the practice is efficacious and meets the National Professional Development Center’s criteria for being identified as an evidence-based practice.
• Supplemental materials — Some briefs contain additional materials, such as data collections sheets.

Online training modules
The NPDC is also in the process of developing online modules for each of the 24 identified evidence-based practices. These modules are available on the Autism Internet Modules (AIM) website (http://www.autismininternetmodules.org) hosted by the Ohio Center for Autism and Low Incidence (OCALI). The AIM website features content from experts on ASD from across the nation on topics including assessment and identification, characteristics, evidence-based practices and interventions, transition to adulthood, and employment. The AIM platform was designed and built by OCALI staff with components consistent with research on how adults learn. Information is presented at a universal reading level with activities providing support to those with introductory or advanced knowledge on ASD. The online modules incorporate all of the information from the briefs, but are enhanced by additional features, such as case studies, video examples, pre- and post-tests, and more.

To access the online modules, you must register for a free account. Select the “Sign Up” or “Create an Account” option on the Autism Internet Modules (AIM) website.

After logging onto the AIM website, the easiest way to locate a specific module is to select an alphabetical view of all modules, and then scroll through and find the module of your choice. Modules can also be accessed through categories.

Developing partnerships with states
The NPDC has developed a model that is based on working with entire states, and programs within the states, for two years. Minnesota has been involved as a state partner since spring of 2009. Other state partners include: Wisconsin, New Mexico, Indiana, Michigan, Kentucky, Virginia, Texas, California, Vermont,
How is technical assistance/coaching organized and who provides it?

Once model sites are selected, state and local technical assistance providers are identified. The decision to have both a local and a state/regional technical assistance (TA) provider for each site, if possible, allows each model site to have a local coach, who is readily available to the site during the year and into the future. The state/regional TA provider is available during the school year to visit each site for at least one day a month for training and coaching. TA providers participate in professional development activities along with their model sites and learn to implement the NPDC model. After the year of work with the model site, each TA provider/coach is able to continue the coaching process and use the NPDC model with other sites with NPDC support during the second year of involvement, and then on their own once state participation with NPDC ends.

Together, the model site teams and TA providers work on three different components of the model site process —

1. Measuring and targeting improvement in program and student outcomes — In order to support the implementation of evidence-based practices in school programs serving learners with ASD, the NPDC model focuses on measuring and targeting improvement for two interrelated outcomes: overall program quality and individual learner performance.

2. Selecting evidence-based practices to address student goals — Identifying and selecting the most appropriate evidence-based practice for the learning goals of an individual learner is an important step in the instructional process. This decision is based on a number of factors including the evidence-based practices available, characteristics and needs of the individual learner, and preferences of the team of professionals who will be implementing the practices.

3. Implementing evidence-based practices with fidelity through training and coaching — The third component of the NPDC model for working with teachers and practitioners describes the resources that are available to learn about implementing EBP with fidelity and the technical assistance and coaching practices that are followed.

The NPDC continues to partner with public schools in order to assist them in applying best practices for children with ASD. Minnesota’s participation with the NPDC has been pivotal in the development of the processes described in this article.

Ellen Franzzone, MS, is senior outreach specialist at the Waisman Center (UCEDD), Early Childhood Professional Development, University of Wisconsin-Madison.

Minnesota educators have been participating in a wide range of professional development activities to enhance their skills in educating individuals with ASD and receiving technical assistance from the Minnesota Department of Education (MDE) through the statewide Minnesota Low Incidence ASD Project’s Autism Network since 1992. These professional development approaches have evolved from models of expert consultation and single workshops, to the current efforts focused on implementation of practices that include training and coaching. This article highlights the most current initiative designed to promote the implementation and use of evidence based practices across the state for students with ASD in collaboration with the National Professional Development Center on Autism Spectrum Disorders (NPDC).

In the fall of 2008, the Minnesota Department of Education’s Special Education Policy Division and Part C Program along with the Institute on Community Integration (Minnesota’s University Center for Excellence in Developmental Disabilities Education-UCEDD), teamed with the Minnesota Low Incidence ASD Project to apply for and were awarded the NPDC-ASD grant on evidence based practices. These efforts began on a small scale with a group of educators motivated to assist in increasing the capacity of educators throughout the state in teaching students with ASD. Earlier efforts focused on an “expert model” of trained educators providing services to districts throughout the state and shifted to a model of building capacity at the local level.

This change in approaches was, in large part, due to the rapidly increasing numbers of children qualifying with ASD and needing services that were appropriate for them to make gains in the educational environment. According to the Dec. 1, 2010 Child Count data, Minnesota has 15,378 individuals between birth and 21 years of age identified under the ASD category and receiving special education services in Minnesota schools.

Currently, educational organizations in Minnesota work together to address this growing need by planning ongoing networking and staff development across the state. The recent focus has been on training and coaching educators to implement evidence based practices for students with ASD. Acceptance as a state team to the NPDC-ASD Project’s Cohort two is now providing Minnesota educators a more structured and supported opportunity to learn and apply evidence based practices (EBP) for students with ASD.

Statewide opportunities
Consistent with the model established by the multi-university NPDC-ASD Project, selected states are assigned a partnering university and collaborate with them to provide the initial training and coaching activities for selected demonstration sites. Minnesota’s NPDC-ASD Project has been aligned with the Waisman Center at the University of Wisconsin-Madison, to receive technical assistance and guidance through the initial implementation of the professional development project for the past two years. Following the development of a Strategic Action Plan tailored to enhance the activities of Low Incidence Project’s Autism Network and designed to utilize the current infrastructure for professional development in Minnesota, school teams were invited to apply to be-
come model demonstration sites. In the first year three teams were selected and in the second year four teams were add to participate in training and coaching and to utilize the resources developed by the NPDC-ASD to increase the use of evidence based practices for students with ASD. The implementation story and outcomes of this professional development project can best be illustrated with a specific school example. The story of Wenonah Elementary School's implementation exemplifies the training, resources and implementation experience by the other Minnesota school teams.

Model demonstration site involvement
During the first year of the NPDC-ASD grant in Minnesota, the Wenonah Elementary School in Minneapolis Public Schools applied to be a model site for the project. The team is part of the Citywide Autism Spectrum Disorder Program in Minneapolis Schools which provides special education services to students with ASD in Federal Settings I, II, and III. The Wenonah team was motivated to be a part of this project because they saw it as an opportunity to work together as a team to develop and provide good interventions for students. They were also excited that the team component included the general education teacher, parent, and administrator. While these team members are sometimes present as part of the IEP team, it is not frequent that all members are contributing to designing and monitoring effective interventions.

The Minneapolis Public School's Wenonah team participated in the “Foundations of ASD” online training course, a 5-day summer institute and additional training in evidence based practices provided by the NPDC-ASD staff. The online “Foundations” course was essential to help all members of the team have a solid foundation about autism and...
its treatment. This was particularly helpful for the administrator, general education teacher, parent, and special education assistant. The course provided all team participants with the necessary information to contribute to the team process of identifying student needs and developing and intervention plan using evidence based practices.

"Using this approach to learn and use evidence based practices has revolutionized my teaching. I was also excited to learn that many of my current practices are evidence based and that I just needed to firm up the implementation."
~ Michele Glynn, elementary inclusive ASD teacher

A program evaluation was used to provide teams with objective information about the strengths and areas for improvement across their site. Trained evaluators utilized the Autism Program Environmental Rating Scale (APERS) to gather this information. The APERS includes the use of observations, interviews, and file reviews to provide information on the quality of the environment, practices, and staff training as they pertain to educating students with ASD. The APERS was conducted by the NPDC-ASD staff both prior to and at the end of the school year. The Pre-APERS provided valuable information and the Wenonah team was able to use this information to help guide their EBP selection process.

As part of the project, the Wenonah team had time to sit down together and review the needs and priority for each of three targeted students. All team members contributed to the process of a) determining specific areas and skills to address, b) using the Global Attainment Scaling (GAS) data collection process to quantify skill acquisition, c) identifying specific evidence based practices to implement. The resources provided by the NPDC-ASD project were essential in this process as the team was able to use the EBP overviews to determine the fit of the intervention with the student need. The NPDC-ASD also has developed a EBP summary chart, the "Practices by age and domain" (Figure 2) that includes information about which developmental areas and age groups have an evidence base for a particular EBP. For example, the Wenonah team chose to implement video modeling to increase social skills for elementary students. The NPDC-ASD EBP summary chart includes the evidence base for the use of video modeling for elementary students working on social skills. Additionally, the overviews for the specific EBPs were effective tools for communication with parents to facilitate their understanding of and involvement in the interventions being implemented with their child.

"Evidence-based practices allow for data driven decisions to be made in situations where alternative curricula and interventions are being used."
~ Meegan Wertz, elementary ASD, self contained classroom teacher

In setting up the data collection system (GAS), the Wenonah team was able to use the students current IEP goals and objectives in determining objective, measurable statements for the GAS ratings of -2 (present level of student performance), -1 (increased level of performance but not as much as one year expected growth), 0 (expected level of growth in one year), +1 (growth slightly greater than expected in one year), and +2 (growth much greater than expected in one year). This data collection system provided the team a structured system in which to measure student progress throughout the school year as the EBPs were being implemented. The team used the GAS ratings to monitor progress and decide if the selected EBP was achieving the anticipated gains.

Prior to the school year of EBP implementation, the Wenonah team also reviewed the related Steps for Implementation and the Implementation Checklists developed for each of the evidence based practices they were planning on implementing. These documents provided by the NPDC-ASD served as essential navigation tools throughout the process of designing, implementing, and monitoring the EBP interventions. Each EBP Implementation Checklist provided a rating system that helped the team determine whether they were implementing each step of the practice with fidelity. Team meetings throughout the school year included ongoing reviews of the Checklists as well as team member action assignments based on discussion of next steps to implement before the follow up meeting.

One of the most essential components of the NPDC-ASD project for the Wenonah team was the internal and external technical assistance that was provided throughout the year. An internal technical assistance provider served as a coach on the team and served as a link to the NPDC-ASD project. This internal coach, a district employee, was chosen based on an existing positive working relationship with the team. It was clear that having a positive, respectful relationship between team members
and the coach helped the team work together toward effective implementation of EBPs for the Wenonah students. Monthly phone calls with the external assistance providers (NPDC-ASD staff) helped ensure that the team was on track in using the tools and resources as well as involved brainstorming on development of and changes to interventions.

**Conclusion/outcomes**

To date, seven teams have been trained across MINNESOTA over the two year NPDC-ASD project and the progress made by teams is substantial. Feedback from districts and special education teachers involved in this process has been very positive.

**The future**

Minnesota is moving forward into the third year (2011-2012) of scaling up evidence based practices for students with ASD in MINNESOTA. For the past two years, model teams from throughout the state have participated as part of the two year NPDC-ASD grant. This year, Minnesota is committed to continuing these efforts and developing a staff development model and scaling up process using the knowledge gained and resources from the NPDC-ASD project. Emphasis will be placed on implementing a coaching model going forward to assist teams in collaborating on the review, selection, and implementation of evidence based practices. Eight partner teams have been chosen to participate in MINNESOTA’s Year 3 Coaching/EBP Project for Fall 2011-2012.

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**Example of EBP implementation — Meet Eli**

Eli and his mother participated in the NPDC-ASD project with the Wenonah team. Eli was a first grader with an educational label of ASD receiving services with the Citywide ASD program in Minneapolis Schools. The team chose to focus on improving Eli’s social skills in the areas of greeting peers, commenting to peers in play, and commenting to peers at lunch. The EBPs selected for implementation to address Eli’s needs included video modeling and self-management. His preferred peers were used as video models to act out the target behavior. Prior to implementing the intervention, Eli did not greet peers upon arriving in his 1st grade classroom in the morning and did not comment to peers in play or at lunch. Visual supports were in place to encourage the use of these skills but they yielded little improvement.

Eli’s friends acted out the following scenarios: playing with a peer on the choice rug using train pieces, commenting to three peers on what they had for lunch, asking peers what they were going to do at recess, and entering the 1st grade classroom and greeting three peers.

Prior to entering each situation, Eli watched the videotape of his peer engaging in the target behaviors. Eli would then enter the specific situation and perform the same behaviors by using a self management system with visual supports. For example, Eli would place three pieces of masking tape on his pants leg that read “You have a______.” and “What are you doing for recess?”. He would move the piece of masking tape from his left leg to his right after he had addressed a peer. The words were quickly faded to “lunch” and “recess” once Eli learned them. Within 16 intervention days, Eli was consistently entering his 1st grade classroom, greeting three peers and giving them compliments with a check off sheet on his desk. He was commenting to peers up to 20 times in a three minute period including spontaneous phrases he had not been taught.

Through the use of video modeling and self management, Eli’s social skills have improved greatly across settings and situations. Where Eli used to play alone on the playground, he can frequently be seen approaching peers on the playground and asking them to play at recess. He has spontaneously expanded his verbal interactions and commenting to peers well beyond the phrases he was taught. Further, self talk that Eli engaged in during lunch no longer occurs. Eli continues to watch his videos as a preferred activity at school.

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“...I have been absolutely thrilled with the NPDC’s ability to promote and provide the technical assistance to a couple of MPS ASD teachers in implementing evidenced-based practices with fidelity in their classrooms. I am even more thrilled with what I have seen related to the progress of their students because of these practices and NPDC’s involvement. I truly hope this work can continue or be replicated so more ASD teachers and students can benefit as well.”

— Ann Fox, Special Programs Director

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Tami Childs, Phd, is coordinator of the Minnesota Low Incidence ASD Project, Michele Glynn is an ASD teacher for Minneapolis Public Schools.
Project SEARCH: An innovative approach to education and employment: Applications for learners with disabilities

By Timothy R. Moore, PhD, Maryellen Daston, PhD, Jayne Spain, MA, Jim Dolce, Project SEARCH graduate, and Sandy Dolce, Parent

National overview

All students graduating from high school have a goal of one day entering the workforce. Traditionally, achieving this goal has been a challenge for students with disabilities given society's low expectations and limited community-based employment training opportunities (Certo et al. 2003). In 1996 the Cincinnati Children’s Hospital Medical Center (CCHMC) adopted a major diversity initiative calling for healthcare organizations to “lead their communities in increasing employment opportunities for qualified persons with disabilities and advocate on behalf of their employment to other organizations.” Erin Riehle (Director of Disability Services and Project SEARCH at CCHMC) and Susie Rutkowski (Project SEARCH Co-Director and Educational Specialist) were inspired by this initiative and acted on the need to develop lasting relationships between schools, disability service providers, and community businesses as a foundation for meaningful job training for students who otherwise would likely not receive access to coordinated job training. Ultimately, they created a shift in the approach to vocational training by establishing Project SEARCH, which addressed the shortcomings of job skill development approaches that were currently available for students with disabilities.

The Project SEARCH team provides students with the needed accommodations, adaptations, and on-the-job coaching to ensure success in each rotation.

The Project SEARCH High School Transition Program is a training and employment model for individuals with disabilities in their last year of school eligibility. Student interns learn employment skills in the workplace and gain the ability to navigate complex work environments. Student interns are provided systematic instruction during three 10-week internship ‘rotations’ at a business. This provides interns with the opportunity to practice a variety of employment skills in a professional environment and to learn what it means to be a valued member of the workforce. Each day begins with a one-hour classroom session focusing on effective communication, critical thinking, problem solving, goal setting, self advocacy, independent living, and learning how to collaborate daily in the workplace. At the end of the workday, students return to the Project SEARCH classroom for an hour of journal writing and reflection. The Project SEARCH team provides students with the needed accommodations, adaptations, and job coaching during the internship.
rotations to ensure success in each rotation (see Figure 1 for description of an average workday).

Interns prepare reflections in their journals and plan for the next day’s activities – applying the lessons learned from today to tomorrow.

In addition to intensive daily instruction, interns are provided with a variety of networking opportunities throughout the Project SEARCH year with employers whose work cultures match their criteria for desirable employment.

The model is predicated on a partnership among local public school systems, vocational rehabilitation services, county staff, and business leaders. All Project SEARCH sites must include representation from the Local Education Agency (LEA – special education), Vocational Rehabilitation Services (VRS) and/or State Services for the Blind (SSB), the County Developmental Disabilities Division, and a host business. Consultation and technical assistance are provided by consultants from the National Project SEARCH office at CCHMC. The LEA provides the licensed instructor and

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Partnerships have resulted in the growth of Project SEARCH to over 150 sites across 39 states, and internationally in Canada, the United Kingdom and Australia. Project SEARCH has received national and international recognition including the US Departments of Labor and Education, and Health and Human Services. Partnerships have resulted in the growth of Project SEARCH to over 150 sites across 39 states, and internationally in Canada, the United Kingdom and Australia. Project SEARCH has received national and international recognition, (e.g. the 2004 U.S. Secretary of Labor’s New Freedom Initiative Award and the 2011 Inclusion Champion Award
from the Mitsubishi Electric America Foundation). The impact of Project SEARCH in the last 15 years has been remarkable but represents only a beginning. On average, 63% of Project SEARCH interns are competitively employed in the community (minimum 20 hours per week, paid at the prevailing wage) within one year of graduation, and that number has been as high as 80 to 100% in some locations. This percentage is consistent with other published research in community-based employment training for students with disabilities.

The Minnesota Department of Education, Special Education Policy selected Project SEARCH specifically to target the outcomes in Indicator 14. The second class of students in Minnesota is completing their Project SEARCH experience in spring 2011 and will generate outcome data in 2012. By way of example in other states, Cincinnati Project SEARCH placed 82.5% of students in the class of 2006 into competitive work in the year following graduation. The class of 2007 achieved 75% placement, and despite the down economy in 2009, 52% of students were working in competitive employment settings after completing their Project SEARCH experience.

The program model as described above is replicated across Project SEARCH sites nationally and internationally. All sites sign a licensing agreement with the national office based at Cincinnati Children’s Hospital Medical Center to ensure the program’s core model components will drive local processes.

In 2007 individuals from the Anoka Community Transition Interagency Committee (CTIC) began exploring the Project SEARCH model and subsequently formed a partnership with Medtronic, Inc. Ultimately, this partnership launched a pilot program in December 2009. In 2010 Minnesota continued their partnership with staff from Project SEARCH and local businesses to implement four additional Project SEARCH programs. Current Implementation Teams are Anoka Schools and Medtronic Inc., Forest Lake and Infinite Campus, Minneapolis Schools and Minneapolis Children’s Hospital, Minnesota State Academies and a business to be determined. Additionally Hopkins, Minnetonka, St. Louis Park schools have partnered with Cargill. The Minnesota Department of Education provided start-up funding for project implementation and funds fidelity checks of model implementation.

Anecdotal data during the first two years of Project SEARCH in Minnesota suggest the experience has been invaluable for students, families, business partners, and educators. In the view of the Minnesota implementation team, real work experiences for students are increasing the likelihood of skill transfer into their work repertoires. The year-long opportunities to practice communication and relationship skills that are vital to success in the workplace has resulted in increased maturity and confidence with each of the students that is vital to success in the businesses community. Families have gained hope and higher expectations for their children as they look towards the future. Parents have gained a better understanding of how their children can be competitively employed alongside other people their age.

Employers on the implementation teams report learning the benefits of including all working-age people, with and without disabilities, into their hiring plans. Identifying the right person for each job within the company is considerably easier when the talent pool of applicants is expanded to include people of all abilities. One employer remarked that through this experience he learned that individuals with disabilities can contribute substantially to the workplace, and employers who then hire these young people acquire an employee with an intact skill set for contributing to the team. When this

"Project SEARCH has helped me learn new job skills, and be able to practice them in a real job setting. Project SEARCH is helping me work toward my goal of a good job after I graduate using my computer skills."
employer gave students new challenges, they rose to the occasion.

The Minnesota implementation teams have learned along the way that the Project SEARCH approach to secondary transition preparation brings rewards but requires persistence and hard work from everyone. Implementation Teams report that the consistent, ongoing support the interns have at their disposal, from the employer who provides the opportunity for real work experience to the job coach who offers task clarification and hands-on demonstrations, account for the success of the model. The key characteristic of a company that can sustain this type of program is commitment to the process and a team of employees who can provide an inclusive work environment. Implementing the program described here requires methodical planning and extensive communication and cooperation.

The Minnesota team has also learned about the scope of interest in, and need for, this program during the application process. Entry into Project SEARCH is competitive, leaving some students and their families disappointed when they are not selected to participate. Communities considering Project SEARCH as a training model must discuss what alternative programming services and supports they can provide to young people who are not chosen to participate in the program.

One Minnesota family’s perspective: Student intern Jim Dolce and his family

Jim’s Experience

“I have been in the Roseville Schools my whole life. I attended Preschool at Parkview, Elementary at Central Park, and I also attended Roseville Area Middle School, and Roseville Area High School. I love anything to do with computers. I enjoy making movies on my computer, and I also like looking up places I want to go on Google Maps. I love to travel, and film the places we go to. I enjoy going out with my friends, and going to movies, bowling and swimming. In school, my favorite subjects were Geography and my computer classes. I enjoyed taking Graphics Design classes at NE Metro 916/Century.

Project SEARCH has helped me learn new job skills, and be able to practice them in a real job setting. Project SEARCH is helping me work toward my goal of a good job after I graduate using my computer skills. Project SEARCH seminar classes help me understand how to work in a job site with other employees. It also helps me with writing my resume, and helps me practice my interview skills.”

Lessons learned by Jim’s family from this approach to secondary transition preparation

“One big lesson we’ve learned in Project SEARCH is how important the real-life setting is in helping students bring the whole learning process full-circle, and in connecting all the dots in one last positive nudge toward adulthood. Having Project SEARCH as the last year of transition makes everything Jim has been learning all these years in school finally come together in one last supportive setting before going out into the real world. This program has allowed Jim to build on his strengths, and gain insight and support in weaker areas, in order to prepare him for his future. Jim has finally been able to show someone what he is able to do and what he has to contribute. Another major lesson we’ve learned is the extent to which businesses are willing to participate in the Project SEARCH program. We thought there would be a desire in the business community, but were pleasantly surprised to learn of the number of those that want to or are becoming involved in the program.”

Continued on page 20
Outcomes Jim’s family expected vs. what Jim accomplished in Project SEARCH

“We hoped Jim would be able to increase his independence in the workplace, learn new skills and enhance the skills he could use in a job setting, and find gainful employment at the end of Project SEARCH.

Jim had the support of job coaches as he learned new tasks, but they are now faded back as he learned job skills. In Jim’s first rotation, he had a job coach onsite with him daily to teach skills, and support him as needed. By his second rotation, he

As Senator Paul Wellstone said, “We all do better when we all do better.” Minnesota is realizing the benefit of the business-community partnerships that are the bedrock of the Project SEARCH program’s ability to prepare students with disabilities to be a part of the Minnesota workforce talent pool.

was working with only occasional support from a job coach, and was working independently after the tasks were learned. This helped Jim grow in his independence and self-confidence, and also helped his co-workers to see how capable he was in performing the tasks he was assigned independently. Without the job coach onsite daily, Jim has learned to speak up for himself, and get the information and support he needed in a more natural way, from his supervisor and fellow employees. Jim learned many new job skills in the three rotations he worked in, providing him with an impressive list of job skills on his resume upon graduation. The Medtronic rotation sites allowed Jim to showcase his skills and abilities, while supporting him as needed in his journey toward total independence.

As we started the process of looking for employment at the end of Project SEARCH, we explored possible employment options at Medtronic, as well as other area businesses that would allow Jim to use the skills he learned in a job setting that might have been out of reach for him without Project SEARCH. Our continued hope is for an independent life for Jim, working in a job he enjoys, earning enough money to support himself, feeling he is part of the community, living a life more like his friends that are now off at college and moving into the workforce in the next year. At the end of Project SEARCH, Jim was hired by the University of Minnesota Physicians, working part-time using the skills he learned in Project SEARCH. Four months later, Jim was promoted to a full-time position at the Masonic Cancer Clinic through the University of Minnesota Physicians as a Health Records Technician. Jim loves his new job, and is working toward a more independent life. For Jim, Project SEARCH was able to help him accomplish this goal in just one year. We anticipated reaching this level would take many years. With the potential for success like this, imagine the possibilities for so many of our young people with disabilities. Everyone involved wants to see Jim’s employment placement help him to thrive, not just survive!

Dr. Temple Grandin, a professor of animal sciences at Colorado State University, as well as an adult with ASD, once described herself as ‘different, but not less.’ That is how I see my son as well. Jim has much to offer employers who have the vision to focus on his abilities, rather than on his disability.”

Moving Project SEARCH forward

As Senator Paul Wellstone said, “We all do better when we all do better.” Minnesota is realizing the benefit of the business-community partnerships that are the bedrock of the Project SEARCH program’s ability to prepare students with disabilities to be a part of the Minnesota workforce talent pool. We hope the strengths and possibilities of the Project SEARCH High School Transition Program will become attractive to a growing number of schools, businesses, and families in the coming years. Project SEARCH is committed to continuing its role in the preparation of young people with special needs to become part of the fabric of their communities.

To learn more about the model, visit www.projectsearch.us

The International Project SEARCH conference was held at the Minneapolis Marriott City Center the week of July 11-15, 2011.

Timothy R. Moore, PhD, is Research Associate at the Institute on Community Integration at the University of Minnesota. Maryellen Daston, PhD, is the grants and communications consultant for Project SEARCH, Cincinnati Children’s Hospital Medical Center. Jayne Spain, MA, is the Secondary Transition Specialist at the Minnesota Department of Education. Jim Dolce is a Project SEARCH graduate, and Health Records Technician at the Masonic Cancer Clinic, University of Minnesota. Sandy Dolce is a parent of two children with ASD, and information/resource specialist.
Special education services for English language learners with autism

By Teri Estrem, PhD

Abstract

Immigration has resulted in large and growing numbers of Non-English speaking minority children and families in Minnesota communities and schools. Many of these children, particularly those with disabilities, exhibit some of the lowest academic performance on statewide tests required by No Child Left Behind. However, to date, there has been limited empirical scrutiny of the prevalence of English language learners (ELL) with disabilities (particularly with respect to their age of entry into special education services). Using data from the Minnesota Department of Education, this brief report explores trends in participation rates of children who received services under the special education categorical label of autism in Minnesota between 2001 and 2008, with a focus on English language learners. Results revealed a dramatic increase in children in the autism special education category for English, Spanish, Somali, and Hmong speakers over the past decade, as well as differences in the age at which they first entered the autism category of special education. Complex interactions between immigration, race/ethnicity, and economic status are likely contributing factors for these differences. After reviewing outcome data, implications for educational practice will be discussed.

Special education services for English language learners with autism

There is general agreement that the increase in reported cases of ASD is due to a combination of a refined definition of the characteristics of ASD, increased knowledge and skills of professionals in the identification of ASD, and an increased public awareness. However, researchers also speculate that genetic susceptibility (Gillberg et al., 1995; Liu et al., 2001; Puleo et al., 2008), environmental factors (London, 2000), and/or cultural factors may play a role in the increasing rates of ASD. In fact, several experts suspect that population changes due to immigration may be associated with changes in the prevalence of ASD (Barnevik-Ollson, 2008; Gillberg, et al, 1995; Goodman & Richards, 1995; Haper & Williams, 1976; Keen et al., 2010). Many of these studies have been conducted outside of the United States, and Keen (2010) questioned whether the association between immigration and ASD prevalence varies between countries.

Overwhelming evidence attests that children with ASD who receive intensive early intervention services have better long-term outcomes than those who do not begin intervention until they are older (American Academy of Pediatrics, 2001; Dawson & Osterling, 1997; NRC, 2001). Thus, if there are differences in prevalence rates of ASD among culturally and linguistically diverse (CLD) groups, there is reason to be concerned about the differences in age at which these diverse children are first identified and when they initially receive intervention. Clearly, health disparities exist for underrepresented populations in the United States. For example, Mandell and colleagues (2002) found that European American children were diagnosed earlier than African American children by an average of 16 months (6.3 years versus 7.9 years, respectively).

The purpose of this brief report was to describe the number of children in Minnesota schools receiving services under the special education and related services designation of autism, including those who are English language learners (ELLs), determine if differences in identification of autism among ELL home language groups in Minnesota exist, and whether the age at which they began receiving educational services under the categorical label of autism was associated with being an ELL and/or in poverty. Specific questions included —

1. What were Minnesota administrative prevalence rates for autism between 2001-2002 and 2007-2008, and did rates vary among home language groups (English, Spanish, Somali, and Hmong)?
Table 1: EPL and ELL children enrolled in Minnesota public schools, classified with autism, and autism prevalence rates

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<td>4.7</td>
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<td>7.6</td>
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<td>12.8</td>
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<tr>
<td>All students</td>
<td>20,706</td>
<td>23,550</td>
<td>26,065</td>
<td>28,227</td>
<td>30,464</td>
<td>32,239</td>
<td>33,951</td>
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<td>30</td>
<td>45</td>
<td>59</td>
<td>84</td>
<td>112</td>
<td>118</td>
<td>148</td>
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<td>Rate of ASD</td>
<td>1.4</td>
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<td>2.3</td>
<td>3.0</td>
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<td><strong>Somali</strong></td>
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<tr>
<td>All students</td>
<td>5,445</td>
<td>5,640</td>
<td>5,734</td>
<td>6,736</td>
<td>7,749</td>
<td>9,583</td>
<td>10,409</td>
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<tr>
<td>ASD students</td>
<td>9</td>
<td>11</td>
<td>16</td>
<td>33</td>
<td>57</td>
<td>73</td>
<td>96</td>
<td>967%</td>
</tr>
<tr>
<td>Rate of ASD</td>
<td>1.7</td>
<td>2.0</td>
<td>2.8</td>
<td>4.9</td>
<td>7.4</td>
<td>7.6</td>
<td>9.2</td>
<td>458%</td>
</tr>
<tr>
<td><strong>Hmong</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All students</td>
<td>22,056</td>
<td>22,117</td>
<td>21,613</td>
<td>21,515</td>
<td>22,737</td>
<td>22,624</td>
<td>22,366</td>
<td>1%</td>
</tr>
<tr>
<td>ASD students</td>
<td>25</td>
<td>35</td>
<td>33</td>
<td>37</td>
<td>42</td>
<td>50</td>
<td>59</td>
<td>136%</td>
</tr>
<tr>
<td>Rate of ASD</td>
<td>1.1</td>
<td>1.6</td>
<td>1.5</td>
<td>1.7</td>
<td>1.8</td>
<td>2.2</td>
<td>2.6</td>
<td>133%</td>
</tr>
</tbody>
</table>

Note. ASD = autism spectrum disorders; ELL = English language learner; EPL = English as a primary language. 

2. What is the effect of economic status and home language on age of entry into special education autism services?

Methods

A review and analysis was completed using the Minnesota Department of Education’s (MDE) large database (the MN Automated Reported Student System [MARSS]) from 2001 to 2008 for children with autism from birth to 21 years of age. The MARSS data is collected from all of Minnesota’s schools and is used to produce national reports of unduplicated child count information. The MDE encrypted student identification numbers so that anonymity and confidentiality of individual students was ensured. Information in the data set included age (as of December 1), gender, economic category (based on Free or Reduced Lunch [FRL]), and primary home language. It must be kept in mind that the following statistics are based on reported information from school districts. The criteria for reporting categorical labels (e.g. autism or developmental delay) may not accurately reflect the number of children served with that diagnosis since only the primary disability is reported. Thus, prevalence or incidence are not reported in this article. Rather, the number of children reported as being served with a designated categorical label of autism are described here—referred to as administrative prevalence. Minnesota’s three largest home language ELL groups were compared to children whose first and primary home language is English. To determine administrative prevalence rates, the count for students in Minnesota public schools and those receiving special education under the autism categorical label between 2001 and 2008 were described. Students were categorized as speakers of English as a primary language (EPL) or English language learners (ELL), classified into the three predominant primary home languages in Minnesota (Spanish, Somali, and Hmong).

1 The term “English as a primary language” (EPL) is coined here to refer to persons who speak English as their primary language, distinct from those who speak English, but for whom it is a second language.
2 The term “English language learners” (ELL) is used here to refer to speakers whose primary language is not English, but who may speak English and multiple other languages.
3 This is the same definition used by the MDE: ELL classification is determined with the Home Language Survey, which identifies a home language other than English. An assessment is made by appropriate school personnel whether students are ELL and need English as a Second Language (ESL) or bilingual services (www.education.state.mn.us).
What were the prevalence rates?

The total number of children enrolled in Minnesota public schools with those receiving special education services under the autism categorical label from the 2001-2002 through 2007-2008 school years (birth to 21 years of age) are shown in Table 1. The total number of enrolled students decreased slightly from 2001-2002 to 2007-2008, as did the number of EPL students. Hmong-speaking students remained fairly stable during that time period, while the Spanish and Somali language groups showed an increase in total enrollment. These changes in enrollment reflect the relatively stable state of EPL speakers, but the steadily increasing rate of ELL students.

The annual administrative prevalence rates of students with autism served in special education also reflects a steady increase between 2001-2002 and 2007-2008 (see Table 1). Figure 1 represents autism prevalence rates for EPL and ELL students for Somali, Spanish, and Hmong students. Table 1 demonstrates that autism rates for both EPL and ELL learners increased. However, when children’s primary (first) languages are examined individually, distinct patterns emerged. Autism prevalence for all language groups was relatively low in 2001-2002 (between 1.1 and 4.7 per 1000 students, Figure 1). However, autism prevalence for Somali students increased by 458% compared to approximately 200% for English and Spanish students and only 133% for Hmong students. Statistical analysis indicated that the prevalence rate for each ELL group was significantly different from that of the EPL group and that prevalence rates among ELL groups were significantly different from each other.

**Age of entry into autism services and poverty**

To provide a sense of when children were identified with autism for special education services, we examined the specific age at which children first entered into the special education autism category and differences among home language groups (Table 2). The mean age at which EPL children were first served under the autism categorical label was 10.5 years. The mean age was significantly lower for Somali speakers (6.5 years, \( p < .001 \)) and Spanish speakers (8.6 years, \( p \leq .001 \)), but not for Hmong children 10.0 years, \( p = .1 \).

**Table 2: Mean age of entry into special education autism category**

<table>
<thead>
<tr>
<th>Language</th>
<th>Count</th>
<th>Mean age (Yrs)</th>
<th>Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>13,893</td>
<td>10.5</td>
<td>.019</td>
</tr>
<tr>
<td>Somali</td>
<td>111</td>
<td>6.5*</td>
<td>.256</td>
</tr>
<tr>
<td>Spanish</td>
<td>189</td>
<td>8.6*</td>
<td>.179</td>
</tr>
<tr>
<td>Hmong</td>
<td>80</td>
<td>10.0</td>
<td>.257</td>
</tr>
</tbody>
</table>

*Significant difference at \( p < .001 \)

To further explore this phenomenon, poverty status was examined to see if it was associated with age of entry into autism special education services. We used Free Lunch, Reduced Lunch, or No Free/Reduced Lunch as an indicator of poverty status. Using this metric, poverty status was a significant variable in the age of entry into autism special education services, with poorer children starting services at a later age than children who do not receive a free or reduced cost lunch (Figure 2). The effect of poverty was constant across all language groups scrutinized. Figure 2 illustrates that potentially the lower the poverty status (i.e., those children receiving free lunch), the later the entry into autism special education services, and EPL students entered significantly later than Spanish and Somali students, even accounting for Free or Reduced Lunch (FRL).
Somewhat surprisingly, children in the Spanish, Somali, and Hmong groups entered into autism special education services at increasingly older ages between 2001 and 2008. However, the average age of entry into autism services for English speakers remained stable during this time period.

**Implications for educational practice**

In summary, there has been a rise in administrative prevalence for all language groups, but the Somali group displayed a steeper trajectory in prevalence rates than the other language groups. Additionally, there were significant differences in the ages at which children entered services under the autism special education categorical label, with English-speaking children entering at a significantly later age than all other home language groups except Hmong. Somali and Spanish children were younger on average than English and Hmong-speaking children. Poverty had a mediating effect on age of entry: the poorer the child, the later he tended to receive special education services under the autism categorical label.

The differential increases in autism cases among Somali and Spanish-speaking students in Minnesota may imply a greater risk of autism for some home language groups. It is likely that social-cultural factors related to immigration (with ELL speakers used as the proxy variable) may well play potentially influential roles in disproportionate increases in autism among some home language groups. These socio-cultural interactions are likely complex and intersect with a variety of other factors. A number of researchers have found an increased risk of autism among immigrant groups around the world (Barnevik-Olsson et al., 2008; Gillberg, Schaumann, & Gillberg, 1995; Keen, et al., 2010; MDH, 2009). Like Keen and colleagues (2010) in the United Kingdom, this brief report found that the autism prevalence among Somali immigrants increased at a steeper trajectory than that of Hmong (Asian) immigrants. Keen and colleagues (2010) concluded that immigration, not ethnicity, appeared to be the main candidate as a risk factor. They offered several possible reasons including selective immigration of parents with higher risk, obstetric complications related to better nutrition (such as mothers with small pelvises giving birth to babies with larger heads), exposure to novel neurotropic virus infections, and prenatal exposure to vitamin D deficiency caused by dark skinned immigrants’ reduced exposure to sun in Northern countries (p. 278-279). However, other investigators (Bhasin & Schendel, 2007; Croen et al., 2002; Mandell et al., 2009) conducting investigations in the United States have provided evidence that ethnicity may be an important factor in higher prevalence rates among Blacks. Furthermore, several researchers (Bhasin & Schendel, 2007; Mandell et al., 2009) have implicated professional bias in case identification of autism, suggesting that health and education providers may differentially diagnose ASD or other disabilities (e.g. mental retardation) based on racial/ethnic variables. However, findings from this brief report that the prevalence of Somali students with autism increased at a faster rate than Hmong or Spanish ELL students with autism suggests a complex interaction between immigration and ethnicity, at least in Minnesota. Future research should more carefully examine prevalence rates and disproportionality, and the interactions between race/ethnicity and home language/immigration status.

A second explanation for different prevalence rates among primary home language groups may be related to cultural differences that encourage or limit individuals’ willingness to access special education and/or health care services. Results of this study indicated that the increase in prevalence rate of Spanish-speaking children between 2001-2002 and 2007-2008 was much lower than

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Continued on page 25
Future research should more carefully examine prevalence rates and disproportionality, and the interactions between race/ethnicity and home language/immigration status.

(Ronningen, 2004). Results of a study by Croen, Grether, and Selvin (2002) in which Mexican mothers who were immigrants were less likely than U.S.-born mothers to have a child with ASD may explain the fairly flat trajectory of Spanish-speaking children with autism in our study compared to the English and Somali groups.

This study is the first to report differences in age of entry for ELL children who receive special education services under the autism categorical label. The younger average ages at which Somali and Spanish-speaking children began receiving services may appear to be a positive finding, given that early intervention results in better outcomes. However, the reasons for this must be explored further. One explanation for Somali and Spanish-speaking children being identified at a younger age than Hmong or English groups may be related to the severity of autism characteristics of the identified children. Children with more severe characteristics of autism may have begun receiving services under the autism categorical label (rather than the more general Developmental Delay categorical label) at an earlier age than children with milder symptoms. Although this severity hypothesis is highly speculative, several studies have found that children of immigrant parents are at risk of more severe neuro-disability symptoms (Akinsola & Fryers, 1986; Goodman & Richards, 1995; Morton, Sharma, Nicholson, Broderick, & Poyser, 2002), including Somali children with autism (Barnevik-Ollson et al., 2008). A related explanation for the difference may be that English-speaking children were first served under the more general categorical label of DevelopmentalDelay (DD) rather than under the autism categorical label. Special education services under the DD categorical label may happen more often with parents of EPL children who may have more comfort, access to, and awareness of knowledge about options in special education decisions, or options in non-school settings. Future research should examine if age of entry under a specific categorical label is affected by severity of symptoms, and if severity influences the age at which a child receives the categorical label of autism.

Understanding ethnic and immigrant disparities in administrative prevalence rates will inform us on how to effectively provide access to screenings and referrals, share cultural perspectives about developmental milestones and disabilities (Mandell et al., 2009), and/or develop options for autism services that are culturally sensitive and appropriate.

The effect of poverty also appears to play a role in the timing of entry into special education autism services, with children entering services later when they receive a free or reduced cost lunch. Researchers have found that the prevalence of autism occurs uniformly across socioeconomic levels when the effect of poverty is statistically accounted for (Bhasin & Schendel, 2007; Mandell et al., 2002). However, in their study in Atlanta, Bhasin and Schendel (2007) observed that the association between higher socioeconomic status (SES) and higher prevalence rates of autism appeared related only with non-school sources of autism identification. They concluded that if an association between higher SES and autism is observed, it was in this study, one should consider SES bias in case identification. This is an important warning when discussing an immigrant/ELL population because research shows that immigrant and ELL groups are more likely to be at a lower SES (Sakamoto, Woo, & Kim, 2010; Stewart & Dixon, 2010), and may therefore be less aware of available services, especially non-school services, and/or how to access them.

Conclusion

This study highlights some of the complex interactions associated with primary home language, race/ethnicity, poverty, and identification of autism for ELL children (e.g. Kohnert, 2008). It is important to keep in mind that the explanations for the disparities among EPL and ELL groups should not be viewed as isolated, simple issues, but rather through a broad cultural and historical lens that includes educational experiences and opportunities of historically underserved groups (Artiles et al., 2010). Although these data are from Minnesota, it would be interesting to have other researchers utilize their state educational data bases to explore whether the differences...
in administrative prevalence, age of entry into autism services, and the effect of poverty are similar in other states. Understanding ethnic and immigrant disparities in administrative prevalence rates will inform us on how to effectively provide access to screenings and referrals, share cultural perspectives about developmental milestones and disabilities (Mandell et al., 2009), and/or develop options for autism services that are culturally sensitive and appropriate.

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References


