

Educating Students with Extensive Support Needs: A Research Cluster in the Department of Special Education and Child Development

In this proposal, we describe UNC Charlotte's established research cluster in the area of educating students with extensive support needs (ESN). This cluster, housed in the Department of Special Education and Child Development within the Cato College of Education, is rooted in the intersections of multiple fields of study including special education, applied behavior analysis, intervention for individuals with autism spectrum disorder, and severe disability. This cluster has a long history of research productivity and has risen to national prominence for its efforts in improving outcomes for this population of underserved individuals.

This cluster is comprised of four faculty members including **cluster lead** Robert Pennington PhD BCBA-D (Lake and Edward J Snyder, Jr. Distinguished Professor of Special Education) and core collaborating faculty Fred Spooner PhD (Professor), Shawnee Wakeman PhD, (Clinical Associate Professor), and Virginia Walker PhD BCBA-D (Associate Professor). Though these four faculty members constitute our cluster core, several other special education faculty members conduct and partner in research related to ESN and contribute to the strength and longevity of this cluster (i.e., Drs. Leslie Bross, Charles Wood, Ya-Yu Lo).

Target area: Existing and Emerging Excellence

Keywords: severe disability, autism spectrum disorder, applied behavior analysis, general curriculum access, inclusion

Executive Summary: Educating Students with Extensive Support Needs

The provision of high-quality educational services for students with extensive support needs (ESN; e.g., intellectual disability, autism spectrum disorder, developmental disabilities) is a complex endeavor as it often requires extensive and pervasive supports to ensure access to and benefit from the full range of opportunities available in school settings. Unfortunately, data suggest the success of students with ESN has been limited due to low expectations for academic performance, exposure to poor instruction, segregation from peers during the school day, and use of harmful and restrictive practices. The deleterious impact of poor educational programming among students with ESN endures beyond graduation as they often find themselves unemployed, isolated, and dependent on others for access to their own communities.

Faculty at UNC Charlotte have established a strong record of research in improving educational outcomes for students with ESN and have elevated their research program to national prominence. This program, started by Diane Browder, Fred Spooner, and colleagues nearly two decades ago, has generated research establishing the effectiveness of innovative instructional strategies and has redefined expectations for the educational achievement of students with ESN. Our current research cluster is comprised of Robert Pennington PhD, BCBA-D (Lead), Fred Spooner PhD, Shawnee Wakeman PhD, and Virginia Walker PhD, BCBA-D. In the last 5 years, these faculty have published 127 journal articles, book chapters, and books, and delivered 243 presentations to international, national, and regional audiences. Further, they have been awarded over 9 million dollars in external grant funding from multiple sources (i.e., U. S. Department of Education's Institute of Education Sciences [IES] and Office of Special Education Programs [OSEP], and the National Science Foundation).

The proposed research cluster is rooted in current issues likely to perpetually generate a breadth of new research questions, extending the teams' work into the future. For example, Drs. Walker and Pennington have recently collaborated on projects related to exploring systemic barriers to providing communication instruction and supports to students with ESN who have complex communication needs. Their hope is to ultimately develop and scale up strategies to support educators in delivering high-quality communication instruction. Similarly, Drs. Wakeman and Pennington recently received external funding to develop a model for improving teachers' use of evidence-based literacy practices for improving reading comprehension in students with ESN. Their work resulted in the development of a teacher coaching model around which they recently submitted a proposal for external funding to the U. S. Department of Education. Finally, Drs. Spooner, Wakeman, and Pennington have collaborated on multiple projects related to the identification of evidence-based practices for students with ESN providing guidance for education and illuminating areas for future research.

This research cluster also is situated as an opportunity for collaborative work across departments and colleges. We have a long history of collaboration with the Department of Education and Leadership faculty and in February, Drs. Wakeman and Pennington submitted a proposal for funding in collaboration with one of their faculty members. Pennington recently received funding for two projects related to the use of robotics in educating children with autism spectrum disorder and is seeking to extend this line of research through collaboration with UNC Charlotte local engineering faculty.

Finally, UNC Charlotte's program in ESN has a long history of recruiting doctoral scholars. These scholars often receive funding and opportunities to engage in research activity through funded projects, and many obtain employment in research-focused institutions (e.g., Vanderbilt, Florida State, Texas A & M).

Evidence of Strength and Excellence

UNC Charlotte's research cluster in ESN is nationally recognized for its faculty members' contributions to research on educating the underserved population of students with intellectual and developmental disabilities. This program of research, initiated by Drs. Diane Browder, Fred Spooner, Shawnee Wakeman, and colleagues has generated hundreds of publications, millions of dollars in funded research projects, numerous commercial products, and multiple generations of university special education faculty. Dr. Browder received numerous accolades for her work including the UNC System's prestigious O. Max Gardner Award (2011) for research that "made the greatest contribution to the welfare of the human race." In 2012, Dr. Spooner received the TED/Pearson Excellence in Teacher Education Award from the Council for Exceptional Children's Teacher Education Division (TED). Their textbook included chapters written by Drs. Pennington and Wakeman, and curricular materials, co-authored with former students, have been widely adopted for use in teacher preparation programs and classrooms. This program's collective research and dissemination efforts have served to inspire researchers across the country and most notably has attracted talented young doctoral scholars to UNC Charlotte to learn from its faculty.

In 2018, this renowned research cluster was expanded to include new faculty members, Drs. Robert Pennington and Virginia Walker. Both faculty members had established research lines that dovetailed seamlessly into UNC Charlotte research program's emphasis on inclusive practices and behavioral instructional strategies. Both brought externally funded projects with them and immediately engaged in collaboration activities with the existing research faculty. For example, within the first month of employment, Dr. Pennington collaborated with Dr. Wakeman and a previous UNC Charlotte graduate, Dr. Saunders, to submit a proposal for external funding that was subsequently awarded. In the last 3 years, faculty in this cluster have collaborated together on numerous projects including four proposals for external funding (i.e., Pennington & Walker, 2020; Spooner & Pennington, 2019; Wakeman, Pennington, & Saunders, 2018; Wakeman, Saunders, & Pennington, 2012), and many publications (e.g., Pennington, Bross, Mazzotti, Spooner, & Harris, 2021; Pennington, Walker, & Tapp, 2020; Wakeman, Pennington, Ceratto, Saunders, & Ahlgrim-Delzell, 2020; Pennington, Wakeman, Saunders, & Cerrato, in preparation). Though Dr. Browder retired in 2018, the current research program has remained strong and continued to grow in breadth with the addition of its new members. As previously mentioned, over the last 5 years, these faculty have published 127 journal articles, book chapters, and books, and delivered nearly 250 presentations to international, national, and regional audiences. Further, they have been awarded over 7 million dollars in external grant funding in the last 3 years.

Our research faculty are nationally recognized for their expertise and serve in numerous leadership positions at the national level. Dr. Wakeman is a co-PI of the TIES National Technical Assistance Center on inclusive practices and policies and works to disseminate best practices for students with ESN, many of which developed at UNC Charlotte, to a national audience. Dr. Pennington serves as member of the center's expert panel offering another opportunity around which our faculty can collaborate. Drs. Spooner and Pennington serve on multiple advisory boards and as external evaluators for projects at other universities. Dr. Pennington is the current President of the Council on Exceptional Children's Division on Autism and Developmental Disabilities and Drs. Spooner and Walker serves on several committees for national organizations (e.g., TASH, AAIDD). Our faculty serve in numerous editorial and review positions for journals related to serving students with disabilities. Notably, Dr. Spooner is the co-

editor of the highly regarded *Journal of Special Education* and Associate Editor for *Research and Practice for Persons with Severe Disabilities*.

The UNC Charlotte's research cluster in ESN also has made an impact on our local community and built strong relationships with local school districts. We have several ongoing projects in local school districts (e.g., Charlotte-Mecklenberg Schools, Kannapolis City Schools, Cabarrus County Schools) and often provide direct consultation, outside of existing projects, to their teachers and administrators. Our team views direct work within schools as a part of our mission in improving outcomes for students with ESN and acknowledges that educational research should benefit both the research team and consumers within the school settings. Our work in building and maintaining relationships in local schools have helped position us to conduct research and support our students research in educational settings.

In light of the research cluster's robust agenda and established mechanisms for research implementation and dissemination, it would benefit from additional resources in student support, research infrastructure, and opportunities to connect with other researchers across UNC Charlotte. The cluster would certainly benefit from additional resources to support doctoral level graduate assistants or postdoctoral scholars to assist in our research effort and to be trained as the next generation of researchers in the area of ESN. The program also would benefit from increased support at the department or college level to assist faculty in pre-and post-award management. Finally, our cluster might benefit from additional support for facilitating collaborations with other colleges across the university. For example, Pennington is currently working on an NSF funded project with engineering faculty from another university but there may be the opportunity to work with local computer engineering partners here at UNC Charlotte.

One of the cardinal components of our research cluster is the intersection with the Department's training program for future research scholars. In 2001, Dr. Browder was hired to coordinate our PhD program in special education. Since its beginning, we have graduated over 83 PhD students with an over 90% graduation rate. The majority of these graduates have obtained positions at institutions of higher education, many of which ranked as Research Intensive (e.g., Vanderbilt, Florida State, University of Texas, University of Nevada Las Vegas, Texas A & M, University of Louisville, University of Kentucky). Our cluster faculty serve together on the doctoral committees, and often work in concert to mentor students in research methodology. Many of our doctoral students receive grant funding and work alongside faculty in conducting research and through the publication process. Our faculty often work together with students on research projects, modeling effective collaboration and co-writing practices. These efforts have generated numerous student publications (e.g., Clausen, Tapp, Pennington, Spooner, & Teasdell, in press, Pennington, Walker, & Tapp, 2020). It is notable that several of our previous graduates have been acknowledged for competency and excellence in research (e.g., Saunders; CEC Division of Research Student Research Award; Root; DADD's Early career researcher Award, IES Early Research Career grant).

Alignment with National Priorities

The work of UNC Charlotte’s research cluster in ESN has primarily focused on the development of models and evidence-based practices for supporting the inclusion of students with ESN in the full range of learning opportunities within local schools. This work is closely aligned to iterative federal legislation mandates that have repeatedly nudged the proverbial bar higher for students with ESN, first calling for increased access to and ultimately, requiring that all students make progress within the general education curriculum (e.g., NCLB, 2001; ESSA, 2015; *Endrew F. v. Douglas County School District*, 2017). The cluster’s alignment with national priorities is evidenced by its receipt of multiple awards from the U.S. Department of Education. Additionally, our work cuts across several current priority areas of research identified by the Institute of Education Sciences, National Center on Special Education Research (see Table 1).

Table 1. Alignment Between IES Priorities and Faculty Expertise

IES Priority Area	Selected Aligned Activities
Reading, Writing, Language	Project IMPACT (Wakeman & Pennington), Project GoWrite (Pennington), Supports Intensity Scale (Walker), Recent investigations (Pennington, Spooner, Wakeman, Walker)
Educators, School-based providers	Project IMPACT(Wakeman & Pennington), Project SIS-C (Walker) Autism and Low Incidence Classroom Observational Tool (Pennington). Project CADET, under review (Wakeman & Pennington), Literature reviews, and investigations (Pennington, Wakeman, Walker)
Science, Technology, Engineering, Mathematics	Project Social Code (Pennington) Adaptive partnership for robotic Treatment of autism (Pennington). Project 5E-SE (Wakeman). Evidence-based practice review and studies (Pennington & Spooner)
Social, emotional, Behavioral Competence	IES grant: Factors contributing to behavioral. Under review (Walker), Recent investigations (Pennington, Walker, Spooner)

Further, our faculty’s collaboration within a federally funded technical assistance center (i.e., TIES center) and numerous state national organizations (i.e., Autism Certification Center, Texas Statewide Leadership for Autism Training, Council for Exceptional Children) indicates a recognition of importance of UNC Charlotte’s faculty expertise and contributions. Our work also is closely aligned the North Carolina Department of Public Instruction’s (NCDPI) strategic plan (<https://ec.ncpublicschools.gov/strategic-plan.pdf>) which emphasizes the adoption of evidence-based practices and the use effective coaching strategies to support schools. This close adherence to local priorities is clearly reflected in the current projects IMPACT and SIS-C as they involve the direct coaching of teachers and to implement evidence-based practices.

Finally, this research cluster is firmly nested within the Universities’ mission and generates outputs consistent with UNC Charlotte’s vision and values to be North Carolina’s urban research university. Our program generates work that resonates internationally, contributes to the elevation of our special education program to top-ranked status, and attracts and prepares high quality educators and research scholars from across the world. For example, our program in special education was ranked in the top 5 in grant dollars generated and articles produced (Academic Analytics, 2017). Most importantly, our efforts nationally and in local schools to support the underrepresented population of students with ESN is centered in the heart of the niner promise to remain committed to “cultural, economic, educational, environmental, health, and social needs” of our community stakeholders.

Name	Title	Area of Expertise
Lead-Robert Pennington PhD BCBA-D	Lake and Edward J Snyder, Jr. Distinguished Professor of Special Education	Extensive Support Needs: Applied Behavior Analysis, Behavioral Intervention, Communication and Literacy, Technology, Teacher Training
Fred Spooner PhD	Professor of Special Education	Extensive Support Needs: Systematic Instruction, General Curriculum Access
Shawnee Wakeman PhD	Clinical Associate Professor of Special Education	Extensive Support Needs: Systematic Instruction, General Curriculum Access, Teacher Training
Virginia Walker PhD BCBA-D	Associate Professor of Special Education	Extensive Support Needs: Applied Behavior Analysis, Behavioral Intervention, Communication, Teacher and Paraprofessional Training