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Neuro-psychologically-Based Transition Planning: Implications for Adolescents with Autism Spectrum Disorder and the World of Work

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Despite the transition requirements mandated by the Individuals with Disabilities Education Act, and a growing body of research supporting effective transition planning for learners with autism spectrum disorders (Gerhardt, 2007; Hendricks & Wehman, 2009), many adults on the spectrum remain without employment. Current estimates suggest that between 55,000-122,000 adolescents between the ages of 15 and 19 in the U.S. have ASD (Fombonne, 2003). 76% of teenagers with autism spectrum disorders over the age of sixteen have never applied for a job and 79% percent of adults with ASD continue to live at home (Seltzer & Krauss, 2002). Social skills and communication challenges, anxiety/stress, and sensory issues affect employability (Newschaffer, Falb, & Gurney, 2006). However, there are limited federal initiatives to support the new face of autism- the young adult.

With appropriate training and education, however, individuals with ASD can be integrated into the community meaningfully (Schall, Cortijo-Doval, Targett, & Wehman, 2006) and work competitively (Gerhardt & Holmes, 2005). It is essential that school professionals plan carefully for transition into adulthood to ensure success (Howlin, Alcock, & Burkin, 2005). Adults with ASD function adequately within a structured educational environment, but display more difficulty when required to assume responsibility, finding and keeping employment, and living independently (Bastiaansen et al., 2004).

Little research has been conducted toward evaluating adults with ASD by real-world measures,

and a neuropsychologically-based assessment provides an opportunity to develop a transition plan emphasizing organization, planning, and verbal as well as nonverbal communication. As adolescents with ASD gain experience and independence in working productively, they can build upon research supported strengths such as punctuality, honesty, attention to detail, and trustworthiness, while continuing to explore the reciprocal, enriched, and more meaningful social relationships. Interventions that reconsider how such learners can be prepared for life beyond the classroom, in the community, and, as gainfully employed citizens, are most critical and timely.

Methods and Intervention

The design represents a novel and interdisciplinary integration of neuropsychology and special education, translating theory and assessment into practice that results in measurable and positive outcomes for an understudied, underemployed and growing population. A descriptive, case study design was used as the data collection and analytic strategy. Participants included six public high-school students with ASD, ages 14-16 attending a regional high-school within a district of 2,500 students, including 430 special needs students, 22 of whom have been diagnosed in the autism arena with seven currently receiving special needs services. One student dropped participation from the study.

Each of the remaining participants was administered the NEPSY-II, a developmental neuropsychological instrument, WISC-IV Integrated, and personality assessments. Neuropsychological profiles identified cognitive, psychomotor, and affective characteristics. Specifically, students' neuropsychological profiles were used to match students to employment sites as part of integrated transition planning. Each individual's specific personal and occupational goals and preferences, along with cognitive, psychomotor, and affective characteristics, determined through neuropsychological assessment, were evaluated in developing a person-centered, highly-individualized

service plan matching personal strengths and employment requirements in partnering with employers identified in labor markets including retail, landscaping, hospitality, grocery, library, and local government agencies including a community college (Muller, Schuler, Burton, & Yates, 2003). Evaluation findings from the neuropsychological assessment provide realistic career options that matched students' skills, abilities, and interests. Lastly, the Quality of Life Inventory (QOLI), and an employer, client, and school satisfaction measure were also administered at baseline and post intervention.

A coordinated in-school and on-site multi-media training curriculum was implemented to assist with the job search process, on-site coaching, and facilitation of workplace interaction. Initially, the job coach/counselor served as a job development specialist, evaluating sites for the participants. The counselor/job coach served as the social skills and behavior facilitator and translator between the employer, co-workers, and parents, providing awareness of strengths and weaknesses, areas of potential miscommunication, co-morbid conditions, and individual idiosyncratic behavior. Emphasis was placed on recognizing and building upon technical skills, clearly defined routines, adequate time for learning, minimal sensory over stimulation, flexible work schedules, work incentives, independent living, and transportation planning.

Students were then placed in individualized employment locations based on their skills, abilities, interests, and vocational goals (Hurlbutt, & Chalmers, 2004). Participants spent two hours per day, three days per week at the job site along with the coach and/or counselor. After the first month, job site fading reduced on-site presence of the job coach to one hour per day, three days per week with continuous reduction as independence emerged. After the first semester fading assumed an on-demand schedule. Portfolio constructing skills were taught and discussed in an ongoing way with the job coach/counselor in order to promote participants' ability to build a resume for future use. Lastly, students were provided with a \$100.00 debit card at the conclusion of each semester, which served as a reward for participation as well as reinforcement for responsible financial management.

Data Analysis and Results

Analysis of the neuropsychological strengths and occupational preferences was matched with position demands, employer support, environmental modifications, task analysis, and training procedures. Results from the NEPSY-II indicated fine motor problems including the following: poor gesture imitation, poor immediate and delayed motor imitation ability, poor motor planning, stereotypic motor behavior, gait problems, motor clumsiness, language problems, poor use of context, difficulty in reciprocal communication, perseverative questioning, echolalia, failure to contribute new information to a conversation, lack of focus during conversation, and unusual lexical patterns (made-up words).

In comparing our sample of adolescents with ASD to the norming population, for the neuropsychological assessment, our data revealed statistically significant differences in mental flexibility, difficulty with abstractions, emotional tone, and complex information processing. Deficits in attention/executive functioning, inhibition difficulty, communication problems, sensori-motor in-coordination, visual processing problems, social perception errors, and visual spatial difficulty were also evident for students with ASD. While visual motor skills were a relative strength among the participants, projective measures evidenced the human figure being treated unusually and in a primitive manner. This pattern was the case across participants, with recognition of affect by facial expression also characterized as weak. Overall, results from projective measures suggested impaired social skills, communication difficulty, and strong external locus of control. That is, students demonstrated a tendency to perceive themselves as being controlled by their environment as opposed to their being in control.

Encouragingly, following the transition planning intervention, a summary of results indicates that five of the six participants received favorable evaluations from employers and continued in their vocational positions through the summer. Data for the stakeholders' satisfaction inventory post intervention indicated employer satisfaction rating scores at 3.8 on a 5-point scale, with a range of 2.0 - 5.0. On selected subscales of the thirty-two item Quality of Life Inventory, participants' reports

reflected a generally positive attitude toward their health, self-esteem, goals, values, work, friends, and family.

Conclusions

It is critical to re-evaluate the ways in which learners with ASD are prepared for adult life beyond the classroom, in the community, and on the job. A neuropsychologically-focused transition program was implemented to meet the needs of individuals identified as ASD who would benefit from reinforcing transferable skills to work competitively and live independently in the community. Results indicated that awareness of neuropsychological strengths, co-morbidity, and idiosyncratic behavior resulted in improved communication and a successful employment/post-secondary experience for students. This research translates theory and assessment into practice that results in measurable and positive outcomes for an understudied, underemployed, and growing population.

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