Intellectual and Developmental Disabilities Effects of Customized Employment on the Independence of Youth with Intellectual and Developmental Disabilities --Manuscript Draft--

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Abstract:	Participation in work during school is a known predictor of postsecondary employment for transition-age youth with intellectual and developmental disabilities (IDD). Recent research has demonstrated the benefits of work on skill development in major life domains. The purpose of this study was to examine the impact of Customized Employment on the support needs of youth with IDD compared to those receiving treatment-as-usual. Findings indicated significant increases in independence in three specific domains for the treatment group versus control on the Supports Intensity Scale -Adult Version, including Home Living, Employment, and Protection and Advocacy. Findings suggest a therapeutic effect of work activities on growth and development in important life domains. Implications for future research, policy and practice are discussed.

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Key words: *Customized Employment, Competitive Integrated Employment, Intellectual and Developmental Disabilities, Support Needs*

Effects of Customized Employment on the Independence of Youth with Intellectual and Developmental Disabilities

In recent years, there has been significant discussion and some evidence that communitybased employment prior to exiting high school is associated with successful postsecondary competitive integrated employment (CIE) outcomes for youth and young adults with disabilities (Carter et al., 2012; Siperstein et al., 2014; Wehman et al., 2020). Several randomized control trial studies have demonstrated that individuals with significant support needs due to Autism Spectrum Disorder who participated in a nine-month intensive business-based internship program acquired CIE at a much higher rate than those in an equal control group (Wehman et al., 2017; Wehman et al., 2020; Whittenburg et al. 2020). Carter and his associates (2012) found that having a paid job within the community during school was a strong predictor of postschool employment within two years of exit for students with severe disabilities. In addition, the results of a national survey assessing indicators of competitive employment found that early work experience was associated with a greater likelihood of postschool CIE for individuals with intellectual and developmental disabilities ([IDD]; Siperstein et al., 2014).

While competitive employment undoubtedly yields monetary benefits, research is now also demonstrating the therapeutic value of work experience on other areas of personal growth and life skills development for youth and young adults with IDD (Schall et al., 2020; Taylor et al., 2021; Wehman et al., 2017). Schall and her colleagues conducted a randomized control trial study and found that participants in a nine-month business internship exhibited improvement on all scales of the Supports Intensity Scale-Adult Version (SIS-A) between baseline and 1-year follow-up. Meaningful improvements were displayed by treatment participants in a wide range of life domains including increased independence in activities of daily living, socialization,

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learning, health and safety, and employment (Schall et al., 2020). In contrast, control group participants not receiving extensive work experiences displayed improvements in only one domain, which pertained to community living (Schall, et al., 2020).

Customized employment (CE) is a strategy that has been associated with positive CIE outcomes for individuals with the significant disabilities (Riesen et al., 2015; Riesen et al., 2021). The foundation of CE is that individuals have contributions that they can make to their communities and the workforce regardless of their disabilities. CE is intended to meet the needs and vocational interests of individuals with significant disabilities as well as the needs of employers by using flexible strategies to facilitate employment outcomes. A defining feature of CE is the initial Discovery phase, which uses a qualitative approach over traditional assessment methods to help an employment service provider understand the strengths, interests, and needs of the job seeker with a disability (Inge et al., 2018). In 2014, the Workforce Innovation and Opportunity Act defined specific CE activities as those encompassing job exploration, working with employers to create a job description based on employer needs, negotiating job details (e.g., duties, schedule, location), a determination of representation by a trained employment professional or self during the employment process, and then on-the-job services for success and retention (Riesen et al., 2015). Positive outcomes of CE include part-time and full-time employment in a business where people without disabilities are employed earning wages equal to or higher than minimum wage.

While CE has been cited as a person-centered approach for individuals with significant disabilities to attain employment in non-stereotypical occupations, there is limited research evidence on its efficacy. Data from the Rehabilitation Services Administration Case Service Report (RSA-911), Program Years 2017 to 2020, show that CE has yet to meet its potential for

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increasing CIE outcomes (Kim et al., in press a; Kim et al., in press b). During this time period, 2,280 vocational rehabilitation (VR) clients with disabilities exited State Vocational Rehabilitation Agencies in the United States after receiving CE under an Individualized Plan for Employment. Less than a third (*n*=692; 30.4%) exited in CIE. Although these numbers are of concern, other studies indicate that CE holds promise as an intervention (i.e., Wehman et al., 2016), and it is time to examine the outcomes being achieved by individuals with significant disabilities who receive this service. This will help to expand our current understanding of the utility and breadth of CE as a meaningful and efficacious intervention.

Recently, [redacted for review] and her colleagues conducted a randomized control trial study to determine the effectiveness of CE on the CIE outcomes of transition-age youth with IDD (redacted for review, 2023). The RCT demonstrated positive CIE outcomes for the participants who were enrolled in the intervention group that received CE services. This included part-time employment earning at least minimum wages in jobs of choice at a significantly higher rate of participation than the control group. While findings from [Redacted for Review] et al. (2023) contribute to the growing understanding of the efficacy of CE as a pathway to CIE, little is known about the impact the CE intervention experiences has on personal growth and skill development in other important areas of life. The aim of the current study was to evaluate the therapeutic effect of the CE intervention on the level of support needs of transition-age youth with a significant disability and high support needs. This article is based on research that was part of the previous randomized control trial reported by [Redacted for review et al.] (2023). The analysis was guided by the following research question;

 Do transition-age youth with IDD who receive CE as an intervention show different patterns and intensity of support needs as measured by the Supports Intensity Scale-Adult Version (SIS-A) than those in a control group who receive services as usual?

Method

Participants

In order to participate in this randomized control trial study, youth had to have a primary or secondary diagnosis of IDD that substantially limited one or more major life activities including economic self-sufficiency. They had to be between 18-24 years of age with parental support for participation. Study criteria also included that the participants were unemployed at intake and consented to work at least 10 hours per week. All participants had a significant disability with high support needs. Prior to joining the study, most participants were receiving services in self-contained special education programs. Those who had graduated from school were in segregated, non-work programs for people with disabilities. Other "services as usual" included community-based non-work activities consisting of group field trips or non-paid work experiences that were used for all youth who rotated through the same experiences.

Recruitment and Randomization

Youth were recruited in three cohorts beginning in 2016 through community organizations which included local school districts, the Autism Society, Autism Speaks, the Downs Syndrome Society, and the state VR agency. These organizations disseminated a flyer on the study and a form for parents to sign consenting to be contacted. Signed forms were sent to the study director who contacted the parents and potential participants for a home visit or a meeting at a private location of their choice. The purpose of the meeting was to describe the study and to obtain informed consent. While a total of 20 participants were targeted for each of the three cohorts to reach an enrollment goal of 60, there were ultimately 54 youth who participated in study. Once four youth consented to participate, they were randomized into the intervention or control group using an online random number generator.

Treatment and Control Conditions

In the CE intervention group, participants worked with an employment specialist to determine their personal strengths and preferences related to employment through Discovery activities (Inge et al., 2018a) and were assisted in obtaining a customized-negotiated job in a community business. Once they obtained employment, an employment specialist provided on-going support until the youth were independently performing their jobs with the support of the business employees. Participants in the CE intervention group also continued to receive services as usual. For instance, some of the transition-age youth continued to participate in their school or day programs in addition to receiving the CE intervention. Intervention hours were during school or after school depending on the participants' and their parents'/guardians' choices.

In the services as usual control condition, transition-age youth continued to receive services offered by their schools and aligned with their Individualized Education Program (IEP). Or, they continued to be enrolled in their segregated day programs and received services developed prior to consenting to participate in the study. In other words, participation in this study did not restrict in any way the services that these youth were already receiving. Participants in the control condition were followed during the course of the study to track their employment outcomes and functional skill development but received no intervention services from employment specialists affiliated with this study.

Procedures

The CE intervention included three interconnected phases: Discovery, customized job development, and ongoing supports once employed. Participants who were randomly assigned to the intervention worked with an employment specialist to determine their personal strengths and preferences related to employment. Once assigned to an employment specialist, the youth was supported by the same specialist throughout each of the three CE phases. Employment specialists received training in the CE intervention from the lead author of this paper and an external consultant from Griffin-Hammis and Associates. Ongoing team meetings were held weekly to discuss the intervention and to provide training and technical assistance to the employment specialists.

Discovery began in the participants' homes with a parent or guardian. During the home visits and meetings at other preferred locations if requested, the goal was to begin learning about the job seeker's unique interests and skills. Parents and guardians were asked to provide contact information and introductions to other family members and acquaintances who knew the participants well for in-depth interviews. The information from the home visits and in-depth interviews was used to schedule Discovery activities that occurred in familiar and novel locations to further learn about the youth's interests and skills. This included identifying businesses that were representative of each participant's unique interests for observation as well as short opportunities to participate in work tasks not to exceed several hours of non-paid work. The information from Discovery was summarized and reviewed with job seekers and their support teams leading to the identification of 2-3 vocational themes for each job seeker.

Once Discovery was completed, the employment specialist worked with the youth and their families on the negotiation of a customized job within a community business. Customized job development for the participants was guided by each youth's specific vocational themes and was individualized. Informational interviews were conducted in businesses to learn more about businesses that matched a specific job seeker's themes, working conditions, and other potential employers who engage in similar work (Inge et al., 2018b). Customized jobs were negotiated using employment proposals, and all jobs met the Workforce Innovation and Opportunity Act's (WIOA, 2014) definition of CIE. In the third phase, the employment specialist provided ongoing supports to include on-the-job training as well as facilitating the support of the businesses' employees until the youth were independent on their jobs.

Data Collection and Timeline

The Supports Intensity Scale-Adult Version (SIS-A), developed by the American Association on Intellectual and Developmental Disabilities (AAIDD), was used to evaluate the support needs of the youth who participated in this study (Thompson, et al., 2015). The SIS-A was administered as soon as youth and their parent/guardian consented to participate in the study by a professional trained in administering the assessment. Interviews were conducted with the parents or guardians and took place in their homes except for two requests to meet at a private location including a parent's business and a public library study room. After the initial baseline assessment, the SIS-A was completed again 12 months later. Table 1 includes descriptive statistics, demographic characteristics, and comparisons between the treatment and control group participants at baseline.

Supports Intensity Scale – Adult Version (SIS-A)

The SIS-A is a strength-based, standardized assessment that measures an individual's support needs in personal, work-related and social activities in order to identify and describe the types and intensity of the supports an individual requires (AAIDD, 2022). This instrument was selected because a previous study (i.e., Schall et al., 2020) demonstrated its usefulness in

measuring the impact of employment on the independence of 18 to 22-year-old youth receiving a different vocational intervention (i.e., employment internship). The SIS-A is appropriate for individuals with IDD aged 16 and older (AAIDD, 2022; Thompson et al., 2004). The most current version of the SIS-A was published in 2015 and it has been widely translated into multiple languages and used across multiple disability categories since its original inception in 2004 (AAIDD, 2022; Bossaert et al., 2009). The SIS-A is a norm referenced tool that was developed using a culturally diverse sample of over 1,300 individuals with IDD (AAIDD, 2022). A number of research efforts have determined that the SIS-A has strong psychometric properties related to reliability and validity, including inter-rater reliability (Thompson et al., 2008), test-retest reliability, internal consistency (Bossaert et al., 2009), factorial validity (Kuppens et al., 2010), and construct validity (Harries et al., 2005; Seo et al., 2016; Weiss et al., 2016).

SIS-A Administration and Score Interpretation

The SIS-A measures a comprehensive array of community life activities (Schall et al., 2020). There are six subscales covering activities in Home Living, Community Living, Lifelong Learning, Employment, Health and Safety, and Social, along with one supplemental scale pertaining to activities of Protection and Advocacy (Thompson et al., 2015). In total, there are 49 items across all six subscales and 8 additional items on the supplemental subscale. Two professionals with extensive training in administering the SIS-A completed all assessments for this study. Assessments were completed by interviewing participants along with familiar individuals who have known the person being assessed for a minimum of three months as specified by the SIS-A protocol (AAIDD, 2022).

During the interview, the trained administrators rated each item within each SIS-A subscale on three dimensions of support (i.e., type of support, frequency, and daily support time).

Type of support ranges from least to most intrusive as indicated by none, monitoring, verbal/gestural prompting, partial physical assistance, or full physical assistance (Thompson et al., 2004; Thompson et al., 2015). Frequency of support ranges from least to most often and is specified as none or less than monthly, at least monthly but not weekly, at least weekly but not daily, at least daily but not hourly, and hourly/more than hourly. Daily support time was measured from least to most in terms of none, less than 30 minutes, 30 minutes to less than 2 hours, 2 hours to less than 4 hours, and 4 or more hours (Thompson et al., 2015). Standard scores on the SIS-A range from 1-20 with a score of 10 indicating that a person with IDD requires an average amount of support (Thompson et al., 2015). Lower standard scores on each subsection of the SIS-A are indicative of needing less assistance and therefore reflect greater independence during community activities.

Data Analysis

To estimate the treatment effect of participation in the CE intervention, a series of multiple linear regressions were used. All regressions included baseline SIS scores as a covariate and a binary variable indicating treatment assignment (1 = Treatment, 0 = Control). Multiple regression allows for the inclusion of baseline SIS scores as a covariate, thereby controlling for any potential differences in SIS scores between treatment and control at baseline (though these differences were quite small, see Table 1). Including baseline SIS scores also increases statistical power for observing a significant treatment effect by explaining additional variation in follow-up SIS scores (taken at 12-months) that is unrelated to treatment assignment.

Results

Demographic information and comparisons between the treatment and control group participants on subscale SIS-A scores at baseline is presented in Table 1. A total of 54 youth was enrolled in the study but 10 were lost to attrition with 3 participants belonging to the treatment group and 7 participants belonging to the control group. Therefore, 44 transition-age youth with IDD between the ages of 18 and 24 completed a SIS-A at baseline and follow-up. Participants in both groups were largely male with 55.6% in the control group and 61.5% in the treatment group. Concerning race, the greatest percentages of participants were Black/African American or Asian for both the control (66.7%, 33.3% respectively) and treatment conditions (50%, 30.8% respectively). ASD was the most prevalent diagnosis across the control (50%) and treatment (61.5%) conditions accounting for at least half of the participants in each group. Baseline differences in subscale SIS-A scores across control and treatment groups were small and not statistically significant (all ps > .58, see Table 1 for means and SDs).

Overall, findings indicated that there were significant differences in the patterns and intensity of support needs displayed by transition-youth with IDD who participated in the CE intervention as compared to those receiving services as usual. Full model results, including test statistics, *p* values, and 95% confidence intervals, are available in Table 2. We also report adjusted p values after applying the Benjamini-Hochberg procedure for controlling the false discovery rate (Benjamini & Hocherg, 1995) as well as partial eta squared measures of effect size for the treatment indicator. Results indicated a significant effect on Employment Activities support needs at the 12-month follow-up from participation in the intervention condition (B = - 1.18, *t* = -2.85, *p* = .007, Adj. *p* = .048, η^2 = .17). Participants who received the CE intervention were found to score 1.18 points lower on the Employment Activities SIS subscale compared to participants in the control condition. A significant effect was also found on Home Living Activities support needs at 12-month follow-up from participation in the intervention condition (B = - 0.69, *t* = -2.42, *p* = .020, Adj. p = .051, η 2 = .12). Participants who received the CE

intervention were found to score 0.69 points lower on the Home Living Activities SIS subscale compared to participants in the control condition. Finally, a significant effect was found for Protection and Advocacy Activities support needs at follow-up from participation in the intervention condition (B = - 4.12, t = -2.68, p = .011, Adj. p = .051, $\eta = 2 = .15$). Participants who received the CE intervention were also found to score 4.12 points lower on the Protection and Advocacy SIS subscale compared to participants in the control condition.

Discussion

These findings are the first known randomized control trial study for youth with IDD indicating the effect of CE on increasing independence in major life areas. The hypothesis for the study was that youth with significant disabilities who receive CE services will develop functional skills and become more independent. A significant effect was found for the participants who received the CE intervention on the Employment Activities, Home Living Activities, and Protection and Advocacy Activities SIS-A subscales. In other words, participants who received the CE intervention needed less assistance completing community activities in these three life domains from baseline to follow-up as evidenced by a decrease in SIS-A scores across data collection points. These findings expand notably on the earlier research by Schall and her colleagues (2020) that demonstrated the impact of employment internships on independence. Results from this study suggest a similar effect is true for CE.

The authors believe that the impact on independence was seen partly because of the Discovery phase of CE, which initially delves more deeply into the lives of each job seeker's support needs, skills, and vocational aspirations than other VR services. Discovery gathers information by in-depth interviewing with people who know the job seeker well, conducting direct observations in the home and in the community, and participating with the job seeker in

familiar and novel settings (Inge, et al., 2018; WINTAC, 2017). During Discovery, the youth in this study receiving CE participated in familiar and unfamiliar integrated community settings doing activities that were representative of their interests and vocational preferences. Engagement in vocationally focused activities during the 12-month data collection period would have enabled youth in the CE intervention to practice a number of skills measured by the SIS-A employment subscale including learning and using specific job skills, accessing and receiving accommodations, interacting with coworkers and supervisors, and completing work tasks with quality and efficiency (Thompson et al., 2015). The exposure to activities in integrated community settings also likely provided the youth an opportunity to develop and practice a number of skills identified on the Home Living subscale that are expected in public such as appropriate hygiene and grooming, proper dressing and eating, toileting, and cleaning up (Thompson et al., 2015). Lastly, the person-centered nature of Discovery and experience in community settings during the 12-month period likely offered some increased opportunity to develop and exercise Protection and Advocacy skills including making choices and decisions, speaking up for oneself or personal finances (Thompson et al., 2015).

In contrast, the youth who were in the control group continued in services as usual, which were segregated school or day programs which typically have limited community exposure. When community-based work experiences for this group are implemented, they frequently encompass a generalized experience within the confines of the school or day program schedule rather than individually targeting each youths' unique skills and interests. As an example, one parent described her daughter's work activities at school as ones that all students in her classroom rotated through. The daughter's work experience at the time of entry into the treatment group was to greet customers at an art center. The parent expressed a great deal of

disappointment in this experience, since her daughter had Autism Spectrum Disorder and selective mutism. Since selective mutism is characterized by a person's inability to speak in certain situations, the mother believed that the experience was a poor match for her daughter's vocational skills and interests.

In this study, it is hypothesized that CIE facilitated independence in activities that required the youth to be independent where they otherwise would have received more intensive oversight or intrusion. As an example, most of the participants were dependent on their families or programs for transportation prior to the study. Since work activities required that they be able to get to their jobs independently, youth in the treatment condition were encouraged to move from being totally dependent on family members to using public transportation or accessible transportation services independently.

In general, the findings from this study align with previous research suggesting that work participation collaterally impacts growth in other major life areas beyond just employment for youth and young adults with IDD (i.e., Schall et al., 2020; Taylor et al., 2022). This suggests a therapeutic benefit of work experiences on the overall ability of youth and young adults to transition successfully to adulthood. While the scientific literature has repeatedly pointed to the importance of work during secondary school on postschool outcomes (i.e., Carter et al., 2012; Siperstein et al., 2014; Wehman et al., 2020), findings from this study highlight the need for additional lines of inquiry into the additional benefits of work experiences during high school. Findings shed new light onto the overall importance of providing integrated work-based learning opportunities within the community for transition-age youth with IDD.

Limitations

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There are several limitations associated with this study. First, results reflect a small sample size of only 44 individuals recruited from the same geographic region in a southern U.S. state. Therefore, generalization of results to broader populations and cultures should be conducted with some caution. Second, the length of time each participant spent in each phase of the CE intervention (i.e., Discovery, customized job development, and ongoing supports once employed) was not differentiated due the somewhat interconnected nature of these activities, which means a component analysis of specific activities' contribution to the observed effect on independence cannot be ascertained by this study. Third, findings from this study include a short 12-month window into the impact of the CE process. A longer time frame would have helped determine if the gains in independence observed in this study were maintained long term and if growth might have eventually occurred in other SIS-A domains given more time. Lastly, some CE intervention participants were still in school at the time of the study and therefore still receiving some transition services as usual. Therefore, it is possible that certain transition work activities in school or the home/community effected SIS-A scores. However, we feel this is unlikely since the control group who only participated in their typical transition activities did not show the same gains in independence. Instead, the results more likely showed that CE is a means to improve the lives of transition-age youth in and beyond the work domain.

Implications for Research, Policy and Practice

The results of this study offer important directions for future research, policy and practice. There are many things that are not known, of course, which future research will require. For example, it is not known how long the observed effects will last and to what extent the life domains where significant growth occurred on the SIS-A can be impacted over time. Further, while this study found practically significant changes in level of support needs related to Employment, Home Living, and Protection and Advocacy activities, participation in work over longer durations of time than occurred in this study is likely to create increased opportunities to build new skills in other subdomains on the SIS in which change was not observed during this particular study. Therefore, longitudinal research on CE as a successful pathway to employment and community life is needed. Furthermore, we do not know if work in and of itself led to these changes in the other domains such as community and health, or whether the essential features of CE played a unique and critical role (e.g., opportunity to build rapport with a trusted professional, opportunity to be in the community with a professional rather than a parent/guardian, etc.). In this study, CE activities were not documented on a granular level or coded in a way that linked each activity to specific life domains. Therefore, future research on the amount of intervention hours needed on which specific activities to achieve the observed gains in independence is needed. Follow-up research and discussions with workers with disabilities, families, and employers would be valuable in shedding some additional light on these questions.

The impact of work participation via the CE intervention in this study reiterates the importance of providing work-based learning experiences to transition-age individuals with IDD, particularly within the community. Policy and practice have a huge role to play in this capacity. WIOA (2014) pressed the importance of allocating 15% of VR funding toward pre-employment transition services (Pre-ETS) for youth with disabilities. In this study, the provision of CE services in community-based settings led to gains beyond simply employment which speaks to the need for practioners to prioritize use of person-centered employment interventions that target community integration. In addition, policy makers should continue to direct funding toward integrated service provision that can help transition-age youth develop an array of necessary life

skills that are likely to increase postsecondary outcomes in employment, socialization, and independent living.

While a plethora of research has consistently documented the benefits of work experience prior to school exit (i.e., Carter et al., 2012; Siperstein et al., 2014; Wehman et al., 2020), this is one of several recent studies to show the extension of those benefits to other major life areas. Individualized, community-based interventions like CE have the potential to help transition-age youth with IDD develop the skills necessary for an independent adult life. Independence provides individuals with IDD a greater sense of autonomy and choice over the direction of their day-to-day life. In turn, this provides greater space for happiness and over all well-being. Although additional research is needed to better understand the full impact of CE on independence in major domains, findings from this study bolster support for the value in further investigating CE as a meaningful employment intervention.

References

- American Association on Intellectual and Developmental Disabilities. (2022). *Supports Intensity Scale – Adult Version (SIS-A)*. https://www.aaidd.org/sis/sis-a
- Benjamini, Y., & Hochberg, Y. (1995). Controlling the False Discovery Rate: A Practical and Powerful Approach to Multiple Testing. Journal of the Royal Statistical Society. Series
 B, Statistical Methodology, 57(1), 289–300. https://doi.org/10.1111/j.2517-6161.1995.tb02031.x
- Bossaert, G., Kuppens, S., Buntinx, W., Molleman, C., Van den Abeele, A., & Maes, B. (2009).
 Usefulness of the Supports Intensity Scale (SIS) for persons with other than intellectual disabilities. *Research in Developmental Disabilities*, 30(6), 1306-1316.
 https://doi.org/10.1016/j.ridd.2009.05.007
- Carter, E. W., Austin, D., & Trainor, A. A. (2012). Predictors of postschool employment outcomes for young adults with severe disabilities. *Journal of Disability Policy Studies*, 23(1), 50-63. https://doi.org/10.1177/1044207311414680
- Harries, J., Guscia, R., Kirby, N., Nettelbeck, T., & Taplin, J. (2005). Support needs and adaptive behaviors. *American Journal on Mental Retardation*, 110(5), 393-404. https://doi.org/10.1352/0895-8017(2005)110[393:SNAAB]2.0.CO;2
- Inge, K.J., Brooks-Lane, N. & Graham, C. (2018b). *Q & A on customized employment: Informational interviews*. https://drrp.vcurrtc.org/resources/content.cfm/1310
- Inge, K. J., Graham, C. W., Brooks-Lane, N., Wehman, P. & Griffin, C. (2018a). Defining customized employment as an evidenced-based practices: The results of a focus group study. *Journal of Vocational Rehabilitation*, 48, 155-166. https:// doi.org/10.3233/JVR-180928

- Inge, K., Wehman, P., Li, J., Sima, A. (2023). *Effects of customized employment on transitionage students with intellectual and developmental disabilities: Toward improving vocational capacity and outcomes.* Manuscript in preparation.
- Kim, J., Riesen, T., Inge, K., Keeton, B., Weathers, M., & Tansey, T. (in press a). Customized employment as a pathway to competitive integrated employment: An analysis of RSA 911 data of State Vocational Rehabilitation Agencies with the highest use of this intervention. *Journal of Vocational Rehabilitation*.
- Kim, J., Inge, K., Keeton, B., Riesen, T., Castruita-Rios, Y. & Tansey, T. (in press b). The use of customized employment in state vocational rehabilitation programs: A retrospective study from 2017-2020. *Rehab Counseling Bulletin*.
- Kuppens, S., Bossaert, G., Buntinx, W., Molleman, C., Van den Abbeele, A., & Maes, B. (2010). Factorial validity of the supports intensity scale (SIS). *American Journal on Intellectual* and Developmental Disabilities, 115(4), 327-339. https://doi.org/10.1352/1944-7558-115.4.327
- Riesen, T., Morgan, R. & Griffin, C. (2015). Customized employment: A review of the literature. Journal of Vocational Rehabilitation, 43(3), 183-193. https://doi.org/10.3233/JVR-150768
- Riesen, T., Snyder, A., Byers, R., Keeton, B., & Inge, K. (2021). (under review). An updated review of the customized employment literature. *Journal of Rehabilitation*.
- Schall, C., Sima, A. P., Avellone, L., Wehman, P., McDonough, J., & Brown, A. (2020). The effect of business internships model and employment on enhancing the independence of young adults with significant impact from autism. *Intellectual and Developmental Disabilities*, 58(4), 301-313. https://doi.org/ 10.1352/1934-9556-58.4.301

- Seo, H., Shogren, K. A., Little, T. D., Thompson, J. R., & Wehmeyer, M. L. (2016). Construct validation of the Supports Intensity Scale–Children and Adult versions: An application of a pseudo multitrait-multimethod approach. *American Journal on Intellectual and Developmental Disabilities*, 121(6), 550-563. https://doi.org/10.1352/1944-7558-121.6.550
- Siperstein, G. N., Heyman, M., & Stokes, J. E. (2014). Pathways to employment: A national survey of adults with intellectual disabilities. *Journal of Vocational Rehabilitation*, 41(3), 165-178. https://doi.org/10.3233/JVR-140711
- Taylor, J., Avellone, L., Brooke, V., Wehman, P., Inge, K., Schall, C., & Iwanaga, K. (2022).
 The impact of competitive integrated employment on economic, psychological, and physical health outcomes for individuals with intellectual and developmental disabilities. *Journal of Applied Research in Intellectual Disabilities*, 35(2), 448-459.
 https://doi.org/10.1111/jar.12974
- Thompson, J. R., Bryant, B. R., Campbell, E. M., Craig, E. M., Hughes, C. M., Rotholz, D. A., Schalock, R. L., Silverman, W. P., Tasse', M. J., & Wehmeyer, M. L. (2004). Supports Intensity Scale. Users' manual. American Association on Mental Retardation.
- Thompson, J. R., Bryant, B. R., Schalock, R. L., Shogren, K. A., Tasse, M. J., Wehmeyer, M., Campbell, E. M., Craig, E. M., Hughes, C., & Rotholz, D. A. (2015). Support Intensity Scale - Adult Version: User's Manual. Washington, DC: American Association on Intellectual and Developmental Disabilities.
- Thompson, J. R., Tassé, M. J., & McLaughlin, C. A. (2008). Interrater reliability of the Supports IntensityScale (SIS). American Journal on Mental Retardation, 113(3), 231-237. https://doi.org/10.1352/0895-8017(2008)113[231:IROTSI]2.0.CO;2

- Weiss, J. A., Lunsky, Y., Tassé, M. J., & Durbin, J. (2009). Support for the construct validity of the Supports Intensity Scale based on clinician rankings of need. *Research in Developmental Disabilities*, 30(5), 933-941. https://doi.org/10.1016/j.ridd.2009.01.007
- Whittenburg, H. N., Schall, C. M., Wehman, P., McDonough, J., & DuBois, T. (2020). Helping high school-aged military dependents with autism gain employment through project SEARCH+ ASD supports. *Military Medicine*, 185(Supplement_1), 663-668. https://doi.org/10.1093/milmed/usz224
- Wehman, P., Brooke, V., Brooke, A. M., Ham, W., Schall, C., McDonough, J., Lau, S., Seward, H., & Avellone, L. (2016). Employment for adults with autism spectrum disorders: A retrospective review of a customized employment approach. *Research in Developmental Disabilities*, *53*, 61-72. https://doi.org/10.1016/j.ridd.2016.01.015
- Wehman, P., Schall, C. M., McDonough, J., Graham, C., Brooke, V., Riehle, J. E., Brooke, A., Ham, W., Lau, S., Allen, J., & Avellone, L. (2017). Effects of an employer-based intervention on employment outcomes for youth with significant support needs due to autism. *Autism*, 21(3), 276-290. https://doi.org/10.1177/1362361316635826
- Wehman, P., Schall, C., McDonough, J., Sima, A., Brooke, A., Ham, W., Whittenburg, H.,
 Brooke, V., Avellone, L., & Riehle, E. (2020). Competitive employment for transitionaged youth with significant impact from autism: A multi-site randomized clinical trial. *Journal of Autism and Developmental Disorders*, *50*(6), 1882-1897. https://doi.org/10.1007/s10803-019-03940-2
- Workforce Innovation and Opportunity Act, P.L. 113-128, 128 Stat. 1425 (2014). https://www.congress.gov/113/plaws/publ128/PLAW-113publ128.pdf

EFFECTS OF CUSTOMIZED EMPLOYMENT

Table 1

Descriptive Comparison of Treatment and Control Groups at Baseline

	Control (N=18)	Treatment (N=26)	Overall (N=44)
Gender			
Male	10 (55.6%)	16 (61.5%)	26 (59.1%)
Female	8 (44.4%)	10 (38.5%)	18 (40.9%)
Race/ Ethnicity			
American Indian or Alaska Native	0 (0%)	2 (7.7%)	2 (4.5%)
Asian	6 (33.3%)	8 (30.8%)	14 (31.8%)
Black/African American	12 (66.7%)	13 (50.0%)	25 (56.8%)
White	0 (0%)	1 (3.8%)	1 (2.3%)
Native Hawaiian/Other Pacific Islander	0 (0%)	1 (3.8%)	1 (2.3%)
More than one Race/Ethnicity	0 (0%)	1 (3.8%)	1 (2.3%)
Primary Disability			
ASD	9 (50.0%)	16 (61.5%)	25 (56.8%)
Down's Syndrome	4 (22.2%)	5 (19.2%)	9 (20.5%)
Mild Intellectual Disability	2 (11.1%)	2 (7.7%)	4 (9.1%)
Moderate Intellectual Disability	3 (16.7%)	3 (11.5%)	6 (13.6%)
SIS Home Std. Score			
Mean (SD)	6.50 (1.69)	6.54 (1.45)	6.52 (1.53)
Median [Min, Max]	6.50 [3.00, 9.00]	7.00 [3.00, 8.00]	7.00 [3.00, 9.00]
SIS Community Std. Score			
Mean (SD)	6.44 (1.82)	6.58 (1.50)	6.52 (1.62)
Median [Min, Max]	6.00 [3.00, 9.00]	6.50 [4.00, 9.00]	6.00 [3.00, 9.00]
SIS Learning Std. Score			
Mean (SD)	6.89 (1.45)	6.96 (1.37)	6.93 (1.39)
Median [Min, Max]	7.00 [5.00, 10.0]	7.00 [5.00, 9.00]	7.00 [5.00, 10.0]

EFFECTS OF CUSTOMIZED EMPLOYMENT

	Control (N=18)	Treatment (N=26)	Overall (N=44)	
SIS Employment Std. Score				
Mean (SD)	7.72 (1.23)	7.73 (1.25)	7.73 (1.23)	
Median [Min, Max]	8.00 [5.00, 10.0]	8.00 [6.00, 10.0]	8.00 [5.00, 10.0]	
SIS Health Std. Score				
Mean (SD)	5.89 (1.23)	5.69 (1.05)	5.77 (1.12)	
Median [Min, Max]	6.00 [3.00, 8.00]	6.00 [4.00, 7.00]	6.00 [3.00, 8.00]	
SIS Social Std. Score				
Mean (SD)	7.11 (1.13)	6.96 (0.958)	7.02 (1.02)	
Median [Min, Max]	7.00 [5.00, 9.00]	7.00 [5.00, 9.00]	7.00 [5.00, 9.00]	
SIS Protection/Advocacy Std. Score				
Mean (SD)	7.11 (1.13)	6.96 (0.958)	7.02 (1.02)	
Median [Min, Max]	7.00 [5.00, 9.00]	7.00 [5.00, 9.00]	7.00 [5.00, 9.00]	

EFFECTS OF CUSTOMIZED EMPLOYMENT

Treatment Effect Estim	fulles for I	unicipa	uion in C	L Interv	Adj.	<u>95%</u>	<u>95%</u>	162	Model
Variable	В	SE	t	р	p	CI LL	CI UL	η^2	R^2
	Outcon	ne: SIS E	Employm	ent Subs	<u>cale</u>				
Intercept	2.830	1.340	2.112	0.041		0.124	5.537		
SIS Score Baseline	0.583	0.169	3.460	0.001		0.243	0.923		.30
Condition	-1.184	0.416	-2.849	0.007	0.049	-2.024	-0.345	0.17	
Outcome: SIS Home Subscale									
Intercept	1.543	0.639	2.416	0.020		0.253	2.833		
SIS Score Baseline Treatment	0.746	0.092	8.076	0.000		0.559	0.932		.61
Condition	-0.687	0.284	-2.415	0.020	0.051	-1.261	-0.112	0.12	
	Outcor	ne: SIS	Commun	ity Subso	cale				
Intercept	1.254	0.656	1.913	0.063		-0.070	2.578		
SIS Score Baseline Treatment	0.719	0.095	7.584	0.000		0.528	0.911		.58
Condition	-0.600	0.309	-1.940	0.059	0.083	-1.224	0.025	0.08	
<u>(</u>	Outcome:	SIS Life	elong Lea	arning Su	ubscale				
Intercept	2.112	0.926	2.280	0.028		0.241	3.982		
SIS Score Baseline Treatment	0.613	0.128	4.775	0.000		0.354	0.872		.33
Condition	-0.339	0.358	-0.948	0.349	0.349	-1.063	0.384	0.02	
<u>!</u>	Outcome:	SIS Hea	alth and S	Safety Su	<u>ibscale</u>				
Intercept	2.615	1.069	2.446	0.019		0.456	4.775		
SIS Score Baseline Treatment	0.537	0.174	3.082	0.004		0.185	0.889		.23
Condition	-0.788	0.392	-2.011	0.051	0.083	-1.579	0.003	0.09	
	Out	come: Sl	IS Social	Subscale	<u>e</u>				
Intercept	2.874	1.157	2.484	0.017		0.538	5.211		
SIS Score Baseline Treatment	0.549	0.159	3.456	0.001		0.228	0.870		.25
Condition	-0.580	0.327	-1.777	0.083	0.097	-1.240	0.079	0.07	
<u>0</u>	utcome: S	SIS Prote	ection/Ad	vocacy S	Subscale				
Intercept	5.459	4.938	1.106	0.275		-4.513	15.432		
SIS Score Baseline Treatment	0.815	0.118	6.891	0.000		0.576	1.053		.55
Condition	-4.116	1.536	-2.680	0.011	0.051	-7.218	-1.014	0.15	
<i>Notes</i> . $N = 44$ for all	models. S	tandard	SIS score	es were u	used for	all models	s. SIS = Su	pports In	tensity
Scale. Adj. $p = p$ valu	ues adjust	ed for fa	lse discov	very rate	using B	enjamini-	Hochberg	correction	n. $\eta^2 =$
partial eta squared estimate for treatment indicator. K^2 = total variance in outcome explained by full									

Table 2.Treatmen

... ant Effect Estimates for Participation in CE Intervention on Follow up SIS Se

model.