

# Intellectual and Developmental Disabilities

## COLLEGE-BASED TRANSITION SERVICES' IMPACT ON SELF-DETERMINATION FOR YOUTH WITH INTELLECTUAL DISABILITIES

--Manuscript Draft--

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<b>Abstract:</b>	<p>Most youth in transition services with labels of intellectual or developmental disability (IDD) have poorer employment outcomes than their peers with other or without disabilities. One alternative approach to address this challenge provides youth with IDD access to transition services in the context of a college or university campus. College-based transition services (CBTS) provide students with IDD during their final two to three years of secondary education access to college courses, internships, and employment. A quasi-experimental design evaluation of one college-based transition services model, Think College Transition, found that, after controlling for student baseline scores, the college-based transition services had a significant effect on students' scores of self-determination at post-test. Implications for further refining the model are discussed.</p>

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## **Abstract**

Most youth in transition services with labels of intellectual or developmental disability (IDD) have poorer employment outcomes than their peers with other or without disabilities. One alternative approach to address this challenge provides youth with IDD access to transition services in the context of a college or university campus. College-based transition services (CBTS) provide students with IDD access to college courses, internships, and employment during their final two to three years of secondary education. A quasi-experimental design evaluation of one college-based transition services model, Think College Transition, found that, after controlling for student baseline scores, the college-based transition services had a significant effect on students' scores of self-determination at post-test. Implications for further refining the model are discussed.

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Most youth in transition services with labels of intellectual or developmental disability (IDD) have historically seen poorer employment outcomes than their peers with other or without disabilities. In 2015, the employment rate for transition-aged individuals with IDD (ages 16-21) was 23%, which is less than half the employment rate for transition-aged students without disabilities (Butterworth, Migliore, & ThinkWork!, 2015). Youth with IDD in transition services often continue to receive special education services in most states until the age of 21 or 22 (Digest of Education Statistics, 2018). This extended access to special education services is intended to provide additional time for students to gain access to community-based instruction and employment training experiences to support better postschool outcomes. Students with IDD who stay in school past age 18 typically participate in conventional transition experiences such as life-skills or community-based vocational programs, often only with other students with disabilities (Chiang, Ni, & Lee, 2017). Fewer students are supported to access postsecondary education environments or engage in paid employment in their communities (Lipscomb et al., 2017).

One approach that has emerged in recent years offers an alternative to the conventional transition services approach by providing youth with IDD access to transition services in the context of a college or university campus. College-based transition services (CBTS), also known as dual enrollment or concurrent enrollment, provide students with IDD access to college courses, internships, and employment, as well as access to other college campus activities during their final two to three years of secondary education (Grigal & Bass, 2018; Kleinert, Jones, Sheppard-Jones, Harp, & Harrison 2012). Though the number of students accessing CBTS in the US are absent from current longitudinal datasets such as the National Longitudinal Transition Study 2012 (Lipscomb et al., 2017), two other datasets demonstrate the prevalence of this

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approach to transition services. A national directory of self-identified higher education programs enrolling students with IDD reflects that 39% (n=114) of the 296 existing college programs serve high school-aged students (Think College, 2020). Additionally, data on the 843 students with IDD receiving services in higher education via funded model demonstration projects known as Transition Postsecondary Programs for Students with Intellectual Disability (TPSID) in 2017-2018, reflect that almost 20% of those students (n=153) enrolled in these programs are high school students (Grigal, Hart, Smith, Papay, & Domin, 2018).

College-based transition services can be complex to plan, implement, and oversee given that the model requires the straddling of two systems, secondary and higher education, each with their own funding, structures, and limitations. CBTS requires simultaneous administration of services to address individualized education plan (IEP) transition goals in a college setting and support to students to ensure they receive advising and course access and educational coaching, have opportunities for campus membership, instruction in transportation and campus navigation, and career development and employment experiences. These services are not provided in a single high school classroom but on a college campus and in the community. Moreover, the provision of services comes not from one teacher or one school, but from an array of service providers including district staff (transition specialist, program coordinator, job coaches, education coaches), higher education staff (disability support personnel, advising personnel, faculty and staff, career services, student affairs) and, in some cases, from community disability service providers and state agencies. Most college-based transition services supporting students with IDD are operated and funded by school districts, though some have been initially established via federal or state grants (Grigal, Paiewonsky, & Hart, 2017a; Papay & Bambara, 2011). While CBTS have been documented in the literature for almost two decades (Grigal, Neubert, & Moon,

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2001; Neubert, Moon, & Grigal, 2004), no clear policy guidance has been offered by the Department of Education regarding the composition of these services or their anticipated outcomes.

Given the need to understand more about components of successful CBTS programs, the Think College Transition (TCT) project sought to develop and implement an inclusive college-based transition services model with the goal of improving post-school outcomes for students aged 18 to 21 years with IDD. The TCT model, which relies on a collaborative multi-system approach (Luecking & Luecking, 2015), is a comprehensive framework that presents a holistic structure for planning, implementation and evaluation. The TCT model was based on knowledge of effective and evidence-based practices from the fields of special education, college and career readiness, dual/concurrent enrollment, career and technical education, supported employment, school counseling, and guidance from the Higher Education Opportunity Act (ASCA, 2016; Conley, 2011; Grigal, Hart, & Weir, 2012; National Alliance of Concurrent Enrollment Partnerships, 2012; Perkins Collaborative Resource Network, 2015). Figure 1 shares an overview of the student-centered elements, as well as the systems, foundations, and collaborations that make up the entire model. To construct the model, a Delphi study was conducted with persons with expert knowledge of relevant evidence-based practices to refine and confirm what TCT program staff hypothesized to be the essential TCT model components (Grigal, Paiewonsky, & Hart, 2017b). The results of the Delphi study led to the identification of eight key components: Community-based Transition Services, Student's Self-Determination and Self-Advocacy, Family Engagement and Partnerships, Advising, Course of Study and Enrollment, Student Support for College Success, Dual Enrollment Staff Development, Community-based, Integrated Paid

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Employment, and Evaluation (see Table 1) which informed the development of the TCT model framework (see Figure 1) .

As noted, the long-term goal of the TCT model is to improve post-transition outcomes for youth with IDD. The goal of the current study was to examine the effect of TCT model participation on the proximal outcome of self-determination. This outcome was of particular interest because previous research has found that self-determination in students with disabilities is positively associated with in-school academic outcomes (Konrad, Fowler, Walker, Test, & Wood, 2007; Shogren, Palmer, Wehmeyer, Williams-Diehm, & Little, 2012) as well as post-school employment and education outcomes (Palmer & Bambara, 2014; Powers et al., 2012; Shogren, Wehmeyer, Palmer, Rifenbark, & Little, 2015; Wehmeyer & Palmer, 2003). Causal Agency Theory defines self-determination as

...a dispositional characteristic manifested as acting as the causal agent in one's life. Self-determined people (i.e., causal agents) act in service to freely chosen goals. Self-determined actions function to enable a person to be the causal agent in his or her life (Shogren et al., 2015b, p. 258).

Specifically, self-determined people set goals based on their strengths, interests, preferences and experiences. Their actions are in service of those goals and they are able to navigate challenges that arise. Shogren and colleagues (Shogren et al., 2015a) describe three essential characteristics of self-determination representing seven domains: *Volitional action* is characterized by the domains of *autonomy* and *self-initiation* and refers to the student making intentional choices based on their preferences. *Agentic action* includes the domains of *self-direction* and *pathways thinking* and describes the students' actions in service of their goals: monitoring progress and navigating challenges. Finally, *action-control beliefs* are defined by the three domains of *control-*

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*expectancy, psychological empowerment, and self-realization* and refer to the students' understanding about the relationship among their actions, how those actions are carried out, and the outcomes of those actions.

The student experience of the TCT model revolves around the Plan, Support, Work, Learn elements and each are rich with opportunities to develop self-determination (see Figure 1). For example, person-centered planning sessions (Plan) serve to help students recognize and/or identify their strengths and preferences and to communicate their goals (Mount & O'Brien, 2002). In the case of the TCT project, staff facilitating the person-centered planning process work with a student to identify college classes and potential work experiences that would allow the student to further explore these interests (Hanson, Nunes, Hojnacki & Raeke, 2017). In the Support element, students have access to disability services and career services on campus and are assigned a peer mentor to introduce them to campus life. Self-determined action plays out as students direct their own needed accommodations and seek out help (from peers or services) to reach their goals. In the Work and Learn elements, students engage in jobs and courses, respectively, that are relevant to their career goals, postsecondary goals, and current interests. While participating in these elements, students have the opportunity to act autonomously, monitor progress, navigate challenges, learn about their strengths, and engage in actions needed to reach a goal (see Grigal, Paiewonsky, & Hart, 2017b for an in-depth description of the TCT model).

It was hypothesized that participation in the holistic TCT model of college-based transition services would provide significant authentic opportunities to develop, practice, and hone self-determination skills among transition-aged students with IDD as compared to comparison transition-aged students with IDD who were not engaged in the TCT model. This

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study thus addressed the following research question: *Does one year of participation in the TCT model lead to higher levels of self-determination for 18-22-year-old students with IDD compared to levels of self-determination among students participating in non-college-based transition services?*

## **Methods**

### **Design and Recruitment**

A quasi-experimental research design with data collected prior to the beginning of the school year (baseline) and at the end of the school year (post-test) was used to measure the effect of the TCT model on students' self-determination. Students eligible to participate in the study were those with IDD, aged 18 to 21 years, with no prior college experience, and who were enrolled in their district's transition services. All school districts that partnered with three target institutes of higher education (IHEs) in Massachusetts as part of the Massachusetts Inclusive Concurrent Enrollment Initiative (MAICEI) program were invited to participate in the research study. The MAICEI program supports partnerships between school districts and IHEs to provide college-based transition experiences to youth with IDD. The TCT project worked with these existing partnerships to refine their practices and align them with the TCT model. Additional Massachusetts districts that were not associated with the MAICEI program were also invited to participate as comparison districts.

Districts that accepted the invitation to participate helped select and recruit eligible students. Consent was obtained from each participating student and, if applicable, from the student's guardian. Transition goals defined by students' individualized education programs (IEPs) and transition plans precluded the researchers from randomly assigning students to participate in the TCT model. Intervention students were those who were enrolled in the



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MAICEI program and were therefore exposed to the TCT model. Comparison students were those who were eligible for the MAICEI program but not enrolled and instead received the typical non-college-based transition services in their districts.

### **Sample and Setting**

The final sample included 67 students; 36 intervention and 31 comparison (see Table 2). The MAICEI program targets students with IDD, but the disability categories of the students in our sample also included other disabilities such as neurological impairment. Similarly, while the program targets students who have not passed the Massachusetts Comprehensive Assessment System (MCAS) test (required for high school graduation), the study sample included 27% of students who had passed at least one state assessment. Our sample included more students eligible for free or reduced-price lunch (60%) than the average across participating districts (29%), while the distribution of race/ethnicity was similar to the average across districts, with the majority (75%) of participants being white. Sixteen additional students were not included in the final sample ( $n_{\text{intervention}}=4$ ;  $n_{\text{comparison}}=12$ ) because they had left their transition program (7), could not be located for the final interview (4), went on medical leave during the year (2), left the MAICEI program (1), voluntarily dropped from the study (1), or because their district dropped from the study (1).

Three Massachusetts IHEs participated in the implementation of the TCT model: one two-year community college and two four-year universities. The three IHEs had been involved in the MAICEI program for between three to nine years before engaging in this research study and had been working with between seven to 20 partner districts. Each IHE traditionally accepted approximately 10 new transition-aged students into their program from partner districts each year. Nineteen districts in total agreed to participate in the research study and had eligible

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students enrolled in their transition services. Eight districts were MAICEI partners and provided only intervention students to this research study. Two districts were not partners with any IHE and provided only comparison students to this research study. The remaining nine districts were MAICEI partners and provided both intervention and comparison students (see Figure 2). Staff from the three IHEs and the 17 intervention districts engaged in technical assistance trainings and workshops provided by the TCT project team.

While the college-based transition services provided at the three IHEs followed the TCT model, the typical non-college based transition services in the 11 districts with comparison students varied widely in their structure such that there was not one unified transition experience for comparison students. First, some transition services were located at the district high schools where transition students engaged with high school students and staff, and in some cases transition students attended high school classes, while other transition services were located separately in their own transition setting. Second, district transition services varied in the amount of time students spent in the transition services space. In some districts, students met with transition staff in their district's transition space for brief check-ins, but otherwise spent their time in the community. In other districts, students spent much of their time in the transition space with their transition student peers participating in activities such as functional academics or current events lessons, hands-on practice (e.g., cooking), and leisure activity. Third, transition programs varied on the type of community interaction. Some district transition services emphasized practicing functional (life) skills through exposure to the community (for example, riding public transportation, shopping), while others prioritized placing students with community-based paid or volunteer employment.

As part of their overall transition services experiences, students in the intervention group engaged with their transition student peers in activities like those described above. Critically, however, all students in the intervention group *also* engaged in the college-based transition services of the TCT model which included inclusive college classes with college-aged peers (students without disabilities and possibly with disabilities other than IDD), meetings with college advisors and support services staff and participation in inclusive social events; while the students in the comparison group did not.

## **Measure**

The Self-Determination Inventory: Student Report (SDI) was used to determine the effect of TCT model participation on the students' self-determination. The SDI was developed by Shogren and colleagues for use with individuals aged 13 to 22 with and without disabilities, including those with IDD (Shogren et al., 2018; Shogren et al., 2015a). It measures seven domains for self-determined action within three essential characteristics (see Table 3). All students in the research study completed the online version of the 51-item SDI (Shogren, Wehmeyer, Little, Pratt, Palmer, & Seo, 2015) on the researcher's iPad. Items were presented next to a line with the anchors "disagree" and "agree" on either side. Students responded to each item by touching the place on the line to show how much they agreed or disagreed with the sentence. In order to ensure comprehension of the instrument, researchers in this study provided oral instructions on how to complete the task and also discussed the example item, read the items aloud upon request, and provided word definitions upon request. Students responded to each item on their own. Students were told that there were no right or wrong responses, were given ample time to complete the task, and received a \$20 gift card for each completed interview. While researchers were not blind to the students' condition (intervention vs. comparison), the

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structured nature of the SDI allowed researchers to remain neutral during administration.

Researchers were blind to students' baseline scores at post-test. Locations on the digital line where the student touched were converted computationally to a numeric score between 0 (disagree) to 99 (agree). Average raw scores were computed for each domain at baseline and post-test.

Some IHE programming included new student activities that took place over the summer and early in the fall. Therefore, baseline data collection occurred in the spring prior to the start of the new school year in order to assess self-determination prior to engaging in any college-based activities. A subset of students did not provide consent to participate in the study until the beginning of the fall semester and thus their baseline data was collected in the fall ( $n_{\text{intervention}}=9$ ;  $n_{\text{comparison}}=19$ ).

## **Results**

### **Scale Reliability**

Cronbach's alphas for the items in each of the seven domains ranged from .718 to .935, demonstrating excellent scale reliability in this analytic sample (see Table 4).

### **Baseline Equivalence**

The students' IEP precluded random assignment and it was therefore necessary to establish baseline equivalence of the intervention and comparison groups. The standardized mean difference of each self-determination domain at baseline was calculated by dividing the mean baseline difference between the intervention and comparison students by the pooled baseline student standard deviation. Baseline equivalence was considered to have been established if the standardized mean difference was less than 0.25 standard deviations. This was indeed true for 5 of the 7 domains; all except for autonomy (-0.43 standard deviations) and self-

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initiation (-0.39 standard deviations) (see Table 4). Students in the comparison group had a substantially higher score than students in the intervention group at baseline in the autonomy and self-initiation domains.

### **Group Differences**

Baseline and post-test scores on each of the seven domains were created by calculating the mean response to domain items. Mean scores ranged from 0-99. For six of the seven domains, comparison students scored higher at baseline; intervention students scored higher at post-test for all seven domains (Figure 3).

Ordinary least squares regression was used to compare the magnitude, direction, and statistical significance of the difference between the post-test scores of self-determination for students in the intervention group and students in the comparison group, after controlling for baseline scores. In addition, the effect size controlling for baseline scores (i.e., the conditional effect size) was calculated. According to What Works Clearinghouse (WWC, 2017), effect sizes of 0.25 standard deviations or larger are considered to be substantively important and were considered in this study because the overall small sample size meant that substantive changes might not reach statistical significance.

Results of the regression analyses indicated that, after controlling for student baseline scores, the college-based transition services had a significant effect on students' scores of self-determination at post-test in both domains of Volitional Action: autonomy ( $R^2=.153$ ,  $Beta=12.371$ ,  $p<.05$ ) and self-initiation ( $R^2=.085$ ,  $Beta=12.214$ ,  $p<.05$ ). Furthermore, effect sizes for all domains, except pathways thinking, were greater than .25 (see Figure 3 and Table 4).

### **Discussion**

Transition outcomes for youth with IDD have continued to lag behind their peers with other disabilities and without disabilities (Grigal, Hart, & Migliore, 2011; Lipscomb et al., 2017). Given that students with IDD are three times more likely to stay in high school past the age of 18 (Lipscomb et al., 2017), it is critical to ensure that the time spent in these final years of transition education include activities that improve students' post-school outcomes. In service of this goal, the Think College Transition (TCT) model of college-based transition services (CBTS) offers a nontraditional approach to transition education, shifting the context of services to a college or university environment; creating access to educational, employment, and social experiences that are similar to those accessed by college-aged peers. The purpose of this current study was to examine self-determination as a proximal outcome of TCT model participation, given that it is a characteristic positively associated with improved post-school outcomes (Palmer & Bambara, 2014; Powers et al., 2012; Shogren, Wehmeyer, Palmer, Rifenbark, & Little, 2015; Test et al., 2009; Wehmeyer & Palmer, 2003). The TCT model provides students with IDD the opportunity to engage in various aspects of self-determined behavior in terms of setting goals and monitoring progress through person-centered planning sessions, choosing classes, navigating the campus, engaging in work training environments on and off campus, participating in social activities, and using campus and social supports. The current study found that participation in one year of the TCT model of CBTS substantively increased self-determination in students with IDD aged 18-21 years. Intervention students had substantively higher scores in six of seven domains of self-determination at the end of the school year than comparison students enrolled in their districts' non-college-based transition services.

The statistically significant differences between the intervention and comparison groups on the volitional action domains of autonomy and self-initiation could be due to the overall

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structure of the TCT model services. The day-to-day college experience is ripe with *personal* decision-making opportunities tied to *personal* preferences and short- and long-term goals. These decision-making opportunities are both big (e.g., what course to take, whether to join a club and which one, with whom to socialize) and small (e.g., what path to walk on campus, where to sit in class, whether to share a response in class, what to eat and where) and have real-world *personal* consequences. Arguably, students in conventional transition experiences are not afforded the sheer quantity of personal decision-making opportunities given the typical group setting. Shogren et al. (2018) found that the number of social activities college students with IDD participated in predicted their scores on the autonomy and self-realization domains. These researchers suggest that engagement in campus activities may enhance their capacity to make choices about preferred activities (autonomy) and student self-awareness about what they enjoy (self-realization).

The essential characteristic of *agentic action* includes one's evaluation and adjustment of actions made based on preferences and in relation to goals. Preparing the student for their future beyond the transition experience is at the core of all transition services, college-based and traditional alike. Therefore, students in both settings engage in conversations about making goals, determining supports needed to reach those goals, and navigating their way through obstacles between them and their goals. This may be why students in both conditions scored similarly at post-test for the domain of this essential characteristic concerned with conceptualizing - pathways thinking. In fact, pathways thinking was the only domain in which scores increased from baseline to post-test for comparison students. Why then do intervention students score substantively higher than comparison students on the other domain (self-direction) defined by agentic action? We suggest that the TCT model of CBTS provides a supportive

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environment to not just talk about these skills, but to practice them organically and meaningfully in a *personalized* way. As described above with volitional action, students in the TCT model intervention were afforded many new and varied real-world opportunities to make decisions based on preferences, meet personal challenges, and decide on courses of action based on goals.

Finally, intervention students scored substantively higher than comparison students in all domains of *action-control beliefs* including psychological empowerment, self-realization, and control-expectancy. These domains represent an awareness of one's goals, strengths, and the power that they alone, not other people, have in using their strengths to achieve their goals. All transition students are supported in their transition experiences by several people including transition coordinators, educational coaches, job coaches, and parents/families. Within the college experience students can practice authentic independence at a distance from these supports, such that supports can be faded over time (Hanson, Elander, Galaska, & Redfern, 2018). The college experience provides space and motivation for young adults, both with and without disabilities, to try out new things, experience failure in an area of interest, and discover areas of growth and aspects of personal strength within the relative safe space of this real world practice (Ankeny & Lehmann, 2010). Students participating in the TCT model had access to the more organic support structures available to most college students, with and without disabilities alike, including professors and instructors, campus support services staff, and peer mentors. These support structures, and fading of other professional support structures, may be important to the development of this self-determination essential characteristic as it may help students with disabilities in postsecondary environments to become better self-advocates, which can lead to more successful postsecondary experiences (Morningstar et al., 2010).



The context for this study, the colleges and universities partnering with local school systems to serve youth with IDD, reflects an important educational landscape for future research and practice. As the provision of college-based transition services grows, the need for guidance on effective practices and methods to ensure accountability also grow. Support from state and local education agencies for the use of IDEA funds to support college access as part of the transition experience for 18-21-year olds varies significantly (Lee, Rozell, & Will, 2018). In 2019, the US Department of Education released updated guidance on the use of IDEA funds to support access to college-based transition programs (referred to as dual enrollment). Continued efforts are needed to operationalize this guidance, not only in terms of use of funds, but also to identify and measure the anticipated outcomes of CBTS programs for young adults with IDD. Given the unique structure of these programs, the investment of federal funds could potentially produce substantial dividends in the form of enhanced skills and improved student outcomes.

### **Limitations**

The TCT model of CBTS holds promise as it has demonstrated the potential to positively impact students' self-determination. Our experience conducting this current study, however, demonstrated some of the difficulties involved in implementing and measuring the impact of this service model. In our sample, nine districts contributed both comparison and intervention students to the research study. Therefore, there was a degree of unmeasured contamination that may have occurred within these comparison students. The nine districts were partners in the Massachusetts Inclusive Concurrent Enrollment Initiative (MAICEI) and had established formal memorandums of understanding with the IHEs, agreed with the merits of the TCT model intervention and the research study, and staff participated in TCT model technical assistance training and workshops throughout the school year. Lessons learned in the trainings and

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workshops, as well as general systemic approaches and philosophies adopted by a MAICEI-partnered district, could have affected staff practices with all students with whom they worked, intervention and comparison alike. Nevertheless, there was no contamination on the critical component of the TCT model: only intervention students had experiences at an institute of higher education. We posit that these authentic personal experiences afforded by the college setting allowed students to engage in many new and varied opportunities which allowed students to improve their self-determination.

## **Conclusion**

Our findings reflect that students engaged in the TCT model of college-based transition services (CBTS) had higher scores of self-determination at the end of the school year than did students engaged in traditional non-college-based transition services. What is less clear is what aspect of the TCT model was most critical in changes in self-determination or if the change resulted from the holistic nature of the TCT model itself (see Figure 1).

This is one of the first quantitative studies to examine college-based transition services using a rigorous research design. The overall large effect sizes and statistically significant differences are very encouraging about the positive effect of college-based transition services on self-determination, and potentially on longer-term outcomes of employment and/or future college enrollment. Future research will need to be conducted to learn what TCT model elements specifically affect self-determination and what other long-term effects participation in the TCT model might have. As we learn more about what students can gain from participating in CBTS, state and local education agencies should consider the decision-making process of if, when, and how students with IDD are provided with access to these CBTS experiences. Given the growing

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interest in and access to postsecondary education for students with IDD (Grigal, Hart, Smith, Domin, Weir, 2016), the importance of addressing this issue will likely continue to grow.

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**Table 1.***Think College Transition (TCT) Key Components*

TCT Key Component	Description
1 Community-based Transition Services	High school and college staff collaborate with interagency team members to develop policies and practices to offer transition-aged youth with disabilities community-based transition services and supports. This also includes adequately preparing all stakeholders for this transition model- students, parents and staff.
2 Student's Self- Determination and Self-Advocacy	Students are provided with specific supports, such as person-centered planning, self-advocacy skills, opportunities to direct their choices, schedules and services and to request and use accommodations, as needed.
3 Family Engagement and Partnerships	Staff assist parents to assume new roles and responsibilities in college-based transition activities. Parents are provided with information and resources that prepare them for changing expectations between high school and college, mobility and travel, safety and risk, and college and community-based instruction.

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- |   |   |   |
|---|---|---|
| 4 | Advising, Course of Study and Enrollment    | Students register for credit and non-credit courses that are fully integrated college/university-catalogued courses with their college peers. Students' course of study is coordinated and supports acquisition of skills and knowledge related to student's desired goals.   |
| 5 | Student Support for College Success         | Students have access to accommodations and support provided by the college/university disability services office. They also have access to trained educational coaches and peer support such as mentors and tutors, as needed.  |
| 6 | Dual Enrollment Staff Development           | High school counselors have up-to-date information about program-of-study offerings to students with IDD to aid students in their college decision making. Staff is adequately trained in inclusive higher education, universal design, and effective faculty practices.  |
| 7 | Community-based, Integrated Paid Employment | Staff promotes student participation in community-based competitive employment related directly to course selection and career goals, utilizing employment specialists and a work-based learning plan. Students also access College Career Services, as well as other career supports, e.g., job developer, employment specialists. |

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- 8 Evaluation High school and/or college staff conduct accountability and evaluation of college-based transition services and outcomes on a regular basis, including data from key stakeholders, such as students with and without disabilities, parents, faculty, disability services staff, district transition coordinators and employers.
-

**Table 2.***Demographic information for the total study sample.*

	Total	Intervention	Comparison
Disability	n=63	n=33	n=30
% Intellectual impairment	60	51.5	70
% Autism	36.5	42	30
% Developmental delay	16	9	23
% Neurological impairment	9.5	12	7
% Specific learning disability	<5	6	<5
% Other disability	30	33	30
MCAS	n=59	n=29	n=30
% Passed both ELA and Math exams	24	34.5	13
% Passed either ELA or Math exam	3	0	7
% Did not pass either exams	73	65.5	80
Eligible for free or reduced-price lunch (FRPL)	n=62	n=32	n=30
% Yes	60	62.5	57
% No	40	37.5	43
Race	n=63	n=33	n=30
% African American/Black	<5	6	<5
% Asian	<5	<5	<5
% Hispanic/Latino	14	6	23
% White/Caucasian	75	76	73

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% Other race	<5	9	<5
Gender	n=67	n=36	n=31
% Male	67	64	71
% Female	33	36	29

*Notes:* Demographic information (except gender) was not reported for 4 students (5 students for FRPL; 8 students for MCAS); The sum of students across disabilities is greater than 100% because 44% of participants had two or more disabilities.

**Table 3.***SDI self-determination domains, essential characteristics and sample scale items*

Essential Characteristic	Domain (Number of scale items)	Sample Scale Items
Volitional action	Autonomy (6)	I choose activities I want to do.
		I text, e-mail, or talk on the phone to friends or family when I choose.
	Self-initiation (7)	I look for new experiences I think I will like.
		I start new activities on my own.
Agentic action	Self-direction (6)	I set my own goals.
		I take action when new opportunities come my way.
	Pathways thinking (4)	I think of more than one way to solve a problem.
		I come up with ways to reach my goals.
Action-control beliefs	Control-expectancy (9)	I have what it takes to reach my goals.
		I get help from my friends to carry out my plans.
	Psychological empowerment (7)	I keep trying even after I get something wrong.
	Self-realization (6)	I tell people when I think I can do something.
		I know what I do best.
		I am confident in my abilities.

**Table 4.***Statistics by SDI domain*

Domain	Reliability Statistics			Standardized	Conditional
	KMO	Variance Explained	Alpha	Mean Difference at Baseline	Effect Size at Post-test
Autonomy	0.724	42%	0.718	-0.43	0.54
Self-initiation	0.842	51%	0.839	-0.39	0.54
Self-direction	0.826	59%	0.855	-0.01	0.36
Pathways thinking	0.837	77%	0.902	0.11	0.23
Control-expectancy	0.911	67%	0.935	-0.15	0.31
Psychological empowerment	0.806	57%	0.874	-0.21	0.39
Self-realization	0.845	65%	0.884	-0.13	0.37

## Figure Legend

### **Figure 1.**

*Conceptual Framework of the Think College Transition Model of College-Based Transition Services.*

### **Figure 2.**

*Sample of intervention and comparison districts and students.*

### **Figure 3.**

*Mean baseline and post-test scores for intervention and comparison students for each SDI domain.*



# College-Based Transition Services

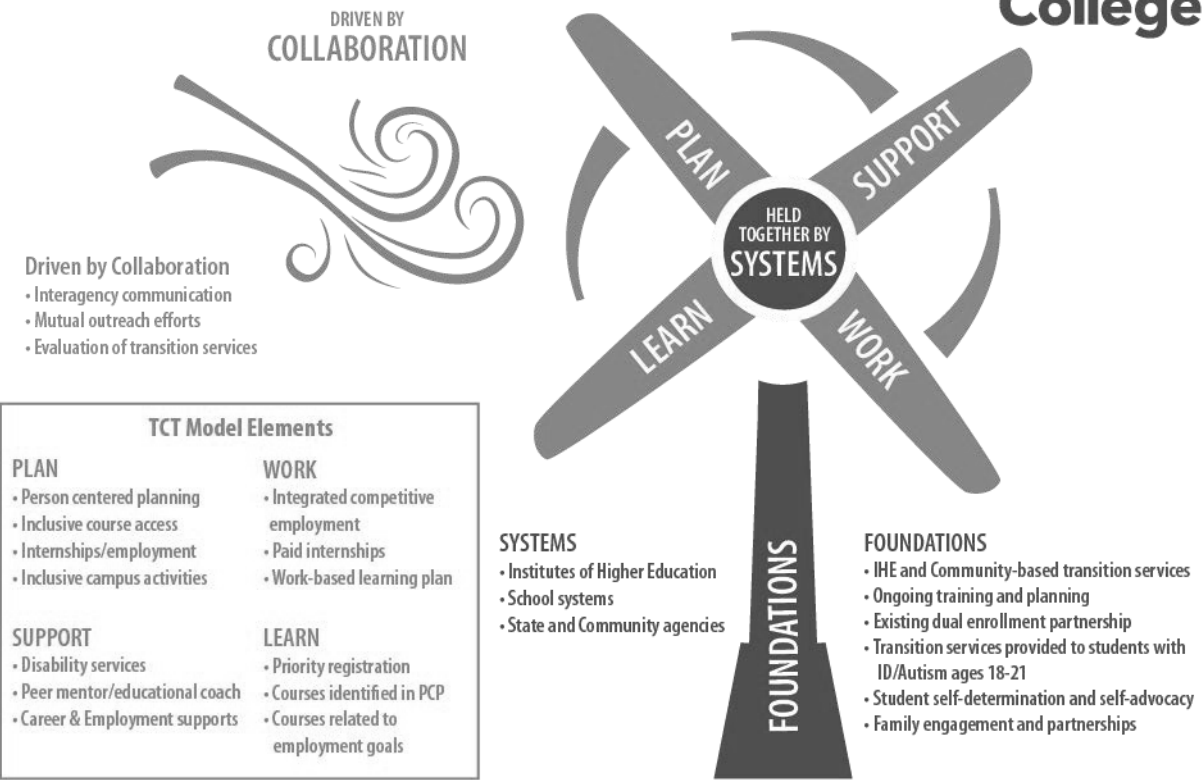


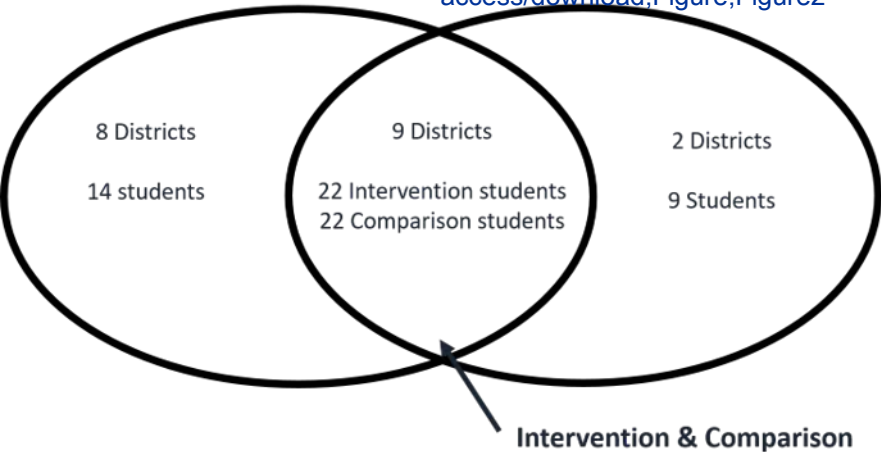
Figure 2

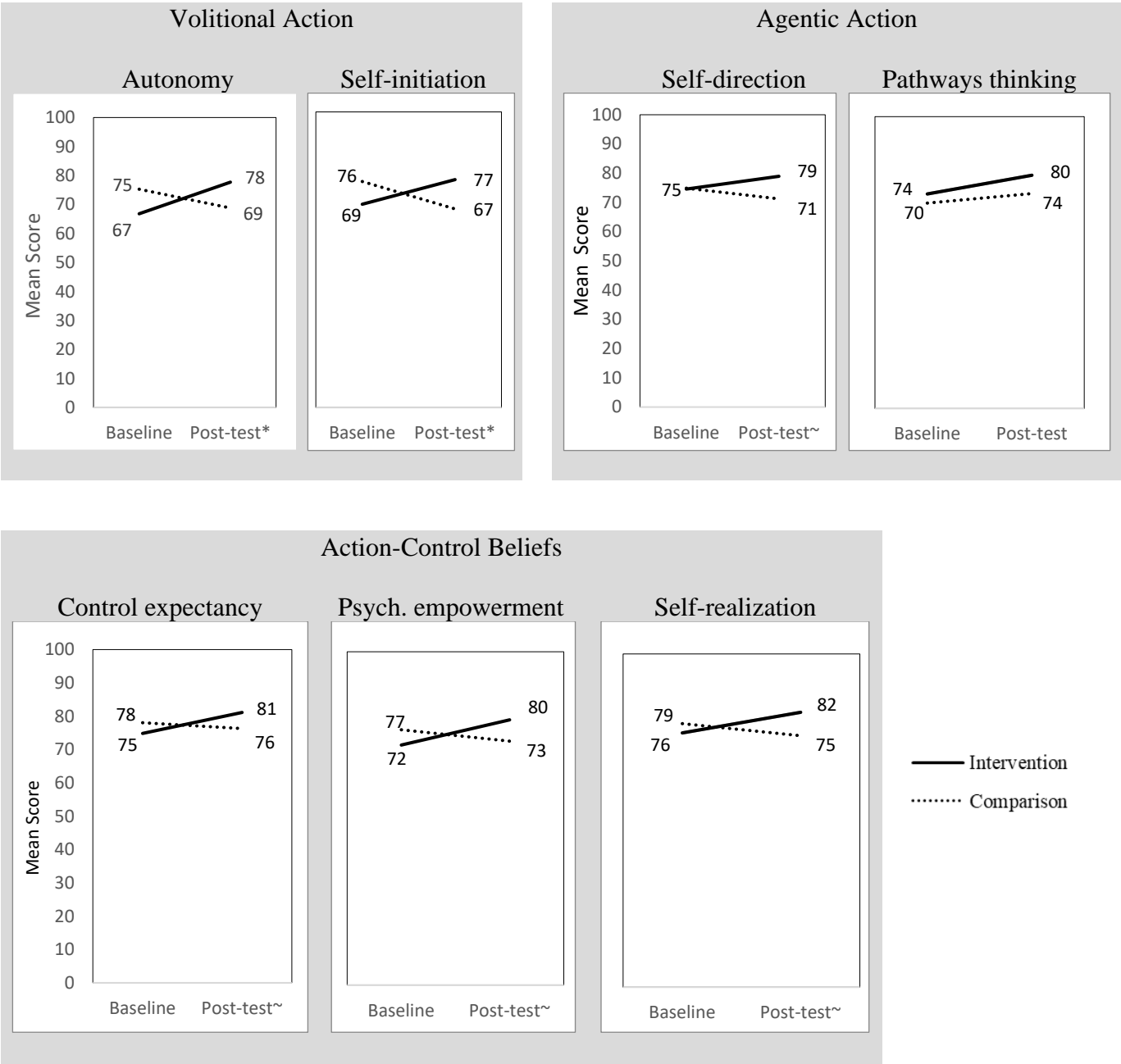
**Intervention**

[Click here to access/download;Figure;Figure2](#)



**Comparison**





\*  $p < .05$ ; effect size  $> .25$   
~  $p$ =not significant; effect size  $> .25$

Figure 3: Mean baseline and post-test scores for intervention and comparison students for each SDI domain.