

EFFECTS OF AN ASYNCHRONOUS ONLINE INTERVENTION ON SECONDARY
GENERAL EDUCATOR KNOWLEDGE, APPLICATION, CONFIDENCE, AND
GENERALIZATION OF THE PREDICTORS OF POSTSCHOOL SUCCESS

by

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ABSTRACT

STEPHEN M. KWIATEK. Effects of an asynchronous online intervention on secondary general educator knowledge, application, confidence, and generalization of the predictors of postschool success. (Under the direction of DR. VALERIE L. MAZZOTTI)

Federal legislation has mandated students with and without disabilities be prepared for college and careers (ESSA, 2015; IDEA, 2004). Students with high-incidence disabilities experience less success than their peers without disabilities (Newman et al., 2011). Initially, college and career readiness efforts lacked a focus on students with disabilities (e.g., Conley 2007, 2008), but recent efforts have increased the focus on students with disabilities (e.g., Morningstar et al., 2017). The predictors of postschool success appear to be a viable option to bridge both efforts. Students with high-incidence disabilities spend at least part of their day in general education classes (NCES, 2017b), but general education teachers report wanting additional information to prepare students with high-incidence disabilities for college and careers (Kwiatek, 2017). General educators identified the predictors of postschool success as relevant, important, and feasible for implementation (Kwiatek et al., 2021). Coupling the alignment between secondary transition and college and career readiness, the predictors of postschool success appear to be an ideal option to provide general educators with professional development to prepare students with high-incidence disabilities for college and careers. The purpose of this dissertation was to examine the effects of an asynchronous online intervention (i.e., General Educators Now Embedding Research [for] Adult Life in Educational Design [GENERAL ED]) on general education teachers' knowledge of research-based and evidence-based, in-school predictors of postschool success. Results of this intervention indicated a functional relation between the asynchronous online intervention and increased knowledge of three predictors of postschool success. Effect sizes were large for increased knowledge of the predictors of postschool success. Additional measures included

application; confidence; generalization; and social validity (i.e., feasibility evaluation, intervention rating scale). Finally, limitations, suggestions for future research, and implications for practice will be discussed.

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CHAPTER 1: INTRODUCTION

To understand how the field of education prepares students with high-incidence disabilities for college and careers, it is important to examine critical information related to preparing students for adult life. The purpose of this dissertation was to examine the effects of an asynchronous online intervention (i.e., General Educators Now Embedding Research [for] Adult Life in Educational Design [GENERAL ED]) on general education teachers' knowledge of research-based and evidence-based, in-school predictors of postschool success. Within this chapter, the statement of the problem, legislation, postschool outcomes, in-school outcomes, college and career readiness, limitations and delimitations, and definitions will be discussed.

Statement of the Problem

Individuals experience a myriad of transitions throughout their lives. As noted by Test et al. (2009), "Life is a series of transitions; from diapers to underpants, from day care to preschool, preschool to elementary school, elementary school to middle school, and middle school to high school" (p. 160). As students prepare for adult life, new opportunities present themselves (e.g., postsecondary education, engagement in the community, new interpersonal relationships). Along with these new opportunities, new challenges can occur (Lane & Carter, 2006). Schools are federally mandated to prepare all students for life after high school (e.g., the Every Student Succeeds Act [ESSA], 2015), along with additional legislation specific to supporting students with disabilities' transition to life after high school (e.g., Individuals with Disabilities Education Improvement Act [IDEA], 2004). Nonetheless, poor postschool outcomes for students with disabilities have been well documented (e.g., Blackorby & Wagner, 1996; Newman et al., 2011).

When considering the transition from high school to adult life, poor postschool outcomes are traditionally the first point of discussion (Kohler & Field, 2003); however, schools were not

legally mandated to examine postschool outcomes until 1990, 13 years prior to Kohler and Field's publication. Transition planning outcome areas include education/training, employment, and independent living (IDEA, 2004). Regardless of federal mandates, students with disabilities are less prepared during high school for adult life than their peers without disabilities.

Furthermore, students with high-incidence disabilities, or the disabilities most represented in schools (i.e., specific learning disabilities, speech or language impairment, intellectual disability, emotional disturbance, other health impairments; O'Brien et al., 2019), experience differing rates of postschool success and may need additional support to prepare for life after high school than their typically developing peers.

Legislation

To help improve students' poor postschool outcomes, federal legislation has mandated the transition process for students with disabilities (e.g., IDEA, 1990, 1997, 2004). IDEA (1990) was the first piece of legislation to mandate preparation for postschool life for secondary students with disabilities. IDEA (1990) required students with disabilities to have transition in their individualized education programs (IEP) no later than age 16. Transition was defined as a coordinated set of activities to prepare students for adult life (IDEA, 1990).

In 1997, IDEA was amended to have transition planning begin by age 14. In addition, teachers were required to include the following in students' IEPs: (a) a statement of how a student's disability affects involvement and progress in the general curriculum; (b) a statement identifying services to help students access the general curriculum; (c) an explanation for why a student would not participate in the general curriculum; (d) a statement of inclusion of students with disabilities in district and state testing, with accommodations, or be assessed with an alternative assessment; and (e) a general education teacher participating in every IEP meeting.

In 2004, postsecondary goals were added and required to be updated annually based on age-appropriate transition assessments (IDEA, 2004). Additionally, IDEA (2004) changed the definition of transition from a goal-oriented process to a results-oriented process. This change in legislation was enacted because IDEA appeared to emphasize “process over outcomes and must be reformed to advance student achievement, reduce excessive paperwork, and ensure better outcomes for students with disabilities” (Turnbull et al., 2007). IDEA’s legislative change aligned the emphasis on student results and achievement as opposed to process (Gaumer Erickson et al., 2014).

In addition to the IDEA legislation to promote successful postschool outcomes for students with disabilities, other legislation has supported outcomes for all students (e.g., the No Child Left Behind Act of 2001 [NCLB], 2006; ESSA, 2015). For example, in 2002, NCLB was passed which mandated the use of scientifically-based research practices to teach all students with the ultimate goal of improving both in-school and postschool outcomes. The use of scientifically-based research practices was reaffirmed and updated with ESSA (2015), which required the use of evidence-based practices and instruction. Furthermore, ESSA mandated all students be ready for college and careers. The modest gains in postschool outcomes experienced by students with disabilities can likely be attributed to legislative mandates that have evolved over time.

Postschool Outcomes

The National Longitudinal Transition Study

For the past 30 years, the field of education has funded the systematic examination of outcomes for students with disabilities. Initially, the National Longitudinal Transition Study (NLTS) was conducted to collect and examine data on students’ postschool outcomes. The

NLTS allowed the opportunity to examine diverse postschool outcomes from a national sample of youth with disabilities (Blackorby & Wagner, 1996). To understand employment trends, wages, postsecondary education attendance, and residential independence within five years after exiting high school, Blackorby and Wagner (1996) examined NLTS data. Results indicated growth of 11 percentage points for students with disabilities in competitive employment between 2 and 3 years after high school, but students with disabilities were still between 12% and 13% lower than students from the general population related to competitive employment (Blackorby & Wagner, 1996). Some youth with high-incidence disabilities had higher levels of employment than the average rates of employment held by other youth with disabilities. These included students with specific learning disabilities (59.2%, 70.8%) and speech language impairment (50.1%, 65.4%) compared to the average rate of employment within two years (45.7%) and between three to five years (56.8%; Blackorby & Wagner, 1996). For other youth with disabilities, youth with serious emotional disturbance (40.7%, 47.4%) and intellectual disability (25.4%, 37.0%) had lower rates of employment respectively within 2 years of exiting high school and again between 3 and 5 years after high school (Blackorby & Wagner, 1996).

For postsecondary education two years after exiting high school, students with disabilities (14%) were less likely than peers from the general population (53%) to have attended a postsecondary education institution within the previous year. Students with speech language impairment (34.0%, 48.8%) and other health impairments (28.0%, 56.0%) had higher rates of attending postsecondary education respectively within 2 years and between 3 and 5 years after high school than individuals with emotional disturbance (17.0%, 25.6%), specific learning disabilities (13.9%, 30.5%), or intellectual disability (8.3%, 12.8%; Blackorby & Wagner, 1996).

Further, students with disabilities (13%) were less likely to have residential independence 2 years after high school than peers from the general population (33%; Blackorby & Wagner, 1996). For independent living outcomes, students with specific learning disabilities (14.7%, 44.1%), emotional disturbance (11.9%, 40.2%), and speech language impairment (12.3%, 39.4%) had higher rates of living independently within 2 years and between 3 to 5 years than individuals with other health impairments (6.6%, 25.1%) or intellectual disability (4.3%, 23.7%; Blackorby & Wagner, 1996). In short, students with disabilities experienced less success for each IDEA-mandated (1990) outcome area than peers from the general population, and students with high-incidence disabilities continue to have support needs to ensure full preparation for life after high school (Blackorby & Wagner, 1996).

The National Longitudinal Transition Study-2 (NLTS-2)

In 1997, the National Center for Special Education Research of the U.S. Department of Education's Institute of Education Sciences funded the NLTS-2 to further examine postschool outcomes for students with disabilities. Findings indicated students with disabilities were less likely than peers without disabilities to (a) enroll in postsecondary education (60% vs. 67%); (b) enroll in 4-year university programs (19% vs. 40%); and (c) complete 4-year programs (34% vs. 51%; Newman et al., 2011). Similar to the NLTS, students with high-incidence disabilities experienced varied postschool outcomes. For example, students with specific learning disabilities (66.8%), speech language impairments (66.9%), and other health impairments (65.7%) had higher rates of enrolling in postsecondary education than individuals with emotional disturbance (53.0%) or intellectual disability (28.7%; Newman et al., 2011).

For employment, individuals with disabilities (60%) still lag behind their peers without disabilities (66%) in terms of competitive integrated employment after having been out of high

school for 8 years (Newman et al., 2011). Specifically, for students with high-incidence disabilities, students with learning disability (67.3%), speech or language impairment (63.9%), or other health impairments (64.4%) had higher rates of employment than students with intellectual disability (38.8%) or emotional disturbance (49.6%; Newman et al., 2011).

In terms of independent living, individuals with disabilities were less likely to live independently than peers without disabilities (44.7% vs. 58.7%; Newman et al., 2011). Again, across outcome areas, students with high-incidence disabilities experienced various levels of success. For example, students with specific learning disabilities (64.9%) and emotional disturbance (63.1%) had higher rates of independent living than peers with other health impairments (58.2%), speech language impairments (51.2%), or intellectual disability (36.3%; Newman et al., 2011). From the time between the NLTS and NLTS-2, students with disabilities made gains in postschool outcomes; however, students with high-incidence disabilities continue to need support to ensure they are effectively prepared for postschool life.

Current Data on Postschool Outcomes

Recent data appear to bolster results from the NLTS and NLTS-2. Of all students enrolled in undergraduate programs, the National Center for Education Statistics (NCES, 2019) found 19.4% were students with disabilities, compared to 80.6% of students without disabilities. Students with disabilities continued to lag behind their peers without disabilities in postschool employment outcomes, including lower rates of employment (60%; Newman et al., 2011; U.S. Bureau of Labor Statistics, 2018) when compared to peers without disabilities (66%). In 2012, the employment rate of working-age people with disabilities was 33.5% compared to 76.3% of people without disabilities (National Council on Disability [NCD], 2014). The differences in rates of employment were also highlighted by the National Center for Education Statistics

(2017a), including individuals with disabilities (27%) obtained employment at far lower rates than individuals without disabilities (77%; NCES, 2017a). Furthermore, people with disabilities were less likely to be competitively employed with full-year (i.e., not seasonal work), full-time work (i.e., 20.9% vs. 56.4%; NCD, 2014). For postsecondary education, individuals with disabilities have lower rates of educational attainment than their peers without disabilities (NCES, 2017a). Specifically, individuals with disabilities were less likely to complete some college (31% vs. 76%), attain an associate degree (35% vs. 82%), or attain a bachelor's degree or higher (45% vs. 84%; NCES, 2017a).

In terms of independent living outcomes, students with high-incidence disabilities (e.g., intellectual disability, 36.3%) were less likely to live independently (i.e., living on their own, with a spouse, roommate, or partner) than their peers without disabilities (59%; Newman et al., 2011). Although students with disabilities have been making gains in postschool outcomes since the NLTS, students with disabilities still experience less independent living success than their peers without disabilities (Blackorby & Wagner, 1996). Substantiating this claim, the majority of housing discrimination complaints from 2005 through 2011 were from individuals with disabilities and was higher than any other complaint (i.e., race, retaliation, familial status, national origin, sex, religion, color; NCD, 2014). Also, the percentages of voters were lower for individuals with disabilities (56.8%), compared to voters without disabilities (62.5%; NCD, 2014), further suggesting less successful independent living outcomes for individuals with disabilities.

In-School Outcomes

The National Longitudinal Transition Study-2012

The NLTS and NLTS-2 were designed to examine postschool outcomes of youth with disabilities. More recently, the NLTS-2012, the third iteration of the NLTS series, was funded to examine in-school outcomes of youth with disabilities. Broadly speaking, youth with disabilities experienced less in-school success than their peers without disabilities (Lipscomb et al., 2017a). These findings may provide rationale for the lack of successful postschool outcomes individuals with disabilities face compared to peers without disabilities (e.g., Newman et al., 2011). The overwhelming majority (i.e., over 80%) of students with disabilities reported happy experiences with school and school personnel, but students with disabilities reported higher rates of bullying (37% vs. 28%; Lipscomb et al., 2017a) and were over twice as likely to face suspension (29% vs. 14%; Lipscomb et al., 2017a). Specifically, youth with emotional disturbance were suspended (65%), arrested (17%), or expelled (19%) at rates double to their peers with other disabilities (Lipscomb et al., 2017b). Although engagement in extracurricular activities have increased, events like grade retention, suspension, and expulsion are comparable to data from the NLTS-2 (Liu et al., 2018). Along with bullying and behavioral concerns, academic concerns were also prevalent for youth with disabilities. For example, students with disabilities reported to be less likely to receive before- or after-school help (72% vs. 78%), but they were more likely to report receiving parental help (84% vs. 65%) than peers without disabilities (Lipscomb et al., 2017a). In comparison to NLTS-2 data, students with IEPs were more likely to receive school supports but were less likely to receive supports at home (Liu et al., 2018). Students with intellectual disability were among the most likely to receive academic accommodation support but were among the least likely to receive different academic supports (Lipscomb et al., 2017b).

Additionally, students with disabilities were less likely than peers to take college entrance and placement exams (42% vs. 70%; Lipscomb et al., 2017a). Compared to a decade ago when students with IEPs were less likely to participate in transition activities, they were comparably likely to attend IEP meetings (Liu et al., 2018). Again, youth with intellectual disability were among the least likely students with disabilities to take college placement and entrance exams (Lipscomb et al., 2017b). In fact, across all disability categories, students with high-incidence disabilities were among the least likely to (a) perform activities of daily living well (i.e., intellectual disability); (b) get together with friends every week (i.e., intellectual disability); (c) participate in a school sport/club (i.e., intellectual disability); (d) never have been suspended (i.e., emotional disturbance); (e) take a college entrance or placement test (i.e., intellectual disability); (f) have recent work experience; (i.e., intellectual disability); or (g) have parents to expect youth to live independently (i.e., intellectual disability; Lipscomb et al., 2017b). These data suggest students with high-incidence disabilities may need additional supports in school to prepare for postschool success.

College and Career Readiness

Students with and without disabilities are required to be prepared with the skills necessary for adult life. Worded differently, it is important for educators to know how to prepare all students to be college and career ready – what we would call in the field of special education – secondary transition, which means preparing students for the transition into adult life. Conley (2007) explained the need to address the “gap between [student] high school experiences and college expectations” (p. 23). To elaborate, Conley (2007) explained students are expected to make inferences, analyze multiple conflicting information sources, interpret results, and read eight or nine texts in college in the same amount of time they would be given to read one text in

high school. Although specifically referencing the alignment between high school and college, Conley (2007) provided the foundation for developing frameworks that contain guidance to address student need between high school experiences and postschool expectations for all students (e.g., college, career). College and career readiness frameworks can help ensure schools are supporting all students for their postschool lives. There is a myriad of frameworks to promote successful preparation for college and careers (e.g., Conley et al., 2007, 2008). Monahan et al. (2020) found college and career readiness frameworks had little evidence documented to support students with disabilities. Fortunately, frameworks have been designed to promote college and career readiness for students with disabilities (e.g., Morningstar et al., 2017). Although there are multiple college and career readiness frameworks to support educators in preparing students to be college and career ready (e.g., dual credit courses, Vargas, n.d.; soft skill instruction, hard skill instruction; Fletcher et al., 2018), only one experimental study was found to address college and career readiness for students with disabilities (Lombardi et al., 2017). Furthermore, there does not appear to be a clearly defined set of college and career readiness evidence-based practices. Given the mandate for using practices supported by research (e.g., ESSA), there appears to be a need to identify specific strategies to ensure all students are, in fact, prepared for college and careers.

General Education

Students with high-incidence disabilities spend the majority of their day (80%) in general education classes (NCES, 2017b). This means general education teachers are preparing students with high-incidence disabilities for adult life. In fact, general education teachers have provided support to prepare all students for postschool employment (School-to-Work Opportunities Act, 1994). Coupled with the fact general education teachers are mandated IEP team members

(IDEA, 1997), general education teachers appear to play a substantive role in preparing all students, including students with disabilities, to be college and career ready.

To further highlight the importance of general education teachers in preparing students to be ready for adult life, inclusion in general education has been identified as a predictor of postschool success correlated with improved education, employment, and independent living outcome areas (Mazzotti et al., 2016, 2021; Test et al., 2009). In addition, career technical education, a general education initiative, was correlated with improved education and employment outcomes (Mazzotti et al., 2016, 2021; Test et al., 2009). Both predictors highlight the importance of the role general education teachers have in promoting positive postschool outcomes for students with disabilities.

Research on engaging general education teachers in promoting college and career readiness for students with disabilities for adult life is minimal. Furthermore, the literature does not include experimental research to increase general education teacher knowledge of preparing students to be ready for college and careers, so it is important to examine non-experimental research to learn about general education teachers' understanding of preparing students to be ready for life after high school. One study surveyed 39 general education teachers in Pennsylvania about perceptions on the importance of 30 transition-related teacher competencies using the Transition/Inclusion Planning Protocol (TIPP; Wolfe et al., 1998). Results were compared to previous findings from special educators who completed the TIPP. Questions included (a) demographic data, (b) 30 key transition-related competencies, and (c) preparation to work with students with disabilities. Results indicated 59% of respondents provided students with disabilities specific content instruction; however, 72% of respondents did not identify as having students with disabilities included in their classrooms. Based on results, Wolfe et al.

suggested providing training to general education teachers related to transition, including training on transition outcome areas.

Using a semi-structured interview protocol, six secondary general educators were interviewed about the transition process for students with and without disabilities. Interviews were audio recorded and transcribed verbatim (Kwiatek, 2017). Transcripts were coded with open, selective, and axial coding to identify potential themes that were confirmed by participants. Results indicated participants wanted additional knowledge on the following transition-related variables, including (a) rationales for IEP decisions, (b) students' postsecondary goals, and (c) effective ways of supporting students as they transition to adulthood.

Because the predictors of postschool success have been suggested for use in transition program evaluation and improvement (e.g., Mazzotti et al., 2021; Rowe et al., 2015), instruction on the predictors seems to be the next logical step to engage general education teachers in the process of preparing all students to be college and career ready. The predictors of postschool success are "a consistent set of predictors of in-school activities that positively correlate with postschool success in education, employment, and independent living" (Mazzotti et al., 2021, p. 1). See Figure 1 for the predictor by outcome area chart. Kwiatek et al. (2021) conducted a mixed method exploratory study, consisting of focus groups and a nationally distributed survey to understand the importance, relevance, and self-perceived ability to implement the predictors. Five general education and five special education teachers participated in focus groups. Participants were asked to rate the predictors for relevance, importance, and ability to implement each of the predictors. The overall highest rated predictors by general education teachers were (a) career technical education, (b) self-care/independent living skills, and (c) self-determination/self-advocacy. The top-rated predictors by special education teachers were (a)

work experience, (b) self-determination/self-advocacy, and (c) self-care/independent living skills. Both groups seemed to rate similar predictors higher than others, and the most relevant predictors were related to the particular content the educator taught. Participants stated all predictors were relevant. In fact, one participant explained that students needed to experience each of the predictors of postschool success. This sentiment was echoed by a second general education teacher and several special education teachers. Thus, results appeared to indicate the predictors of postschool success were relevant, important, and were able to be implemented by both general education and special education teachers. Given these results, the predictors of postschool success may be a novel way to engage general education teachers in the process of preparing all students to be college and career ready.

Figure 1*Predictors Correlated with Postschool Outcome Areas*

Predictors/Outcomes	Education	Employment	Independent Living
• Career Awareness	Promising	Promising	
• Career Technical Education (was Vocational Education)	Research-based	Evidence-based	
• Community Experiences		Promising	
• Exit Exam Requirements/High School Diploma Status		Promising	
• Goal-Setting	Research-based	Research-based	Research-based
• Inclusion in General Education	Research-based	Research-based	Research-based
• Interagency Collaboration	Promising	Promising	
• Occupational Courses	Promising	Promising	
• Paid Employment/Work Experience	Research-based	Research-based	Promising
• Parent Expectations	Promising	Research-based	
• Parental Involvement		Promising	
• Program of Study	Research-based	Research-based	
• Psychological Empowerment (new)	Promising	Promising	Promising
• Self-Advocacy/Self-Determination	Research-based	Research-based	Promising
• Self-Care/Independent Living	Promising	Promising	Research-based
• Self-Realization (new)		Promising	Promising
• Social Skills	Promising	Promising	
• Student Support	Promising	Research-based	Promising
• Technology Skills (new)		Promising	
• Transition Program	Research-based	Promising	
• Travel Skills		Promising	
• Work Study		Research-based	
• Youth Autonomy/Decision-Making	Research-based	Research-based	Promising

National Technical Assistance Center on Transition (2020). *Predictors by outcome area.*

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Because of legislative mandates to prepare all students for adult life, coupled with students with high-incidence disabilities' poor postschool outcomes, it is critical to determine how to prepare all students to be college and career ready. Because no experimental research promoting general education teacher knowledge of, or involvement in, the process of preparing all students for adult life was found, it is important to examine general education teachers' perceptions and knowledge of the process of preparing students for adult life. Further, given inclusion in general education and career technical education are correlated with improved postschool success, along with Kwiatek et al.'s (2021) findings of the predictors being relevant, important, and able to be implemented, the predictors of postschool success seem to be an ideal option to teach general education teachers about preparing students to be college and career ready. The purpose of this study was to examine the effects of an asynchronous online intervention (i.e., General Educators Now Embedding Research [for] Adult Life in Educational Design [GENERAL ED]) on general education teachers' knowledge of research-based and evidence-based, in-school predictors of postschool success. The specific research questions were:

1. What is the effect of GENERAL ED on general education teachers' knowledge of the predictors of postschool success?
2. To what extent will GENERAL ED increase general education teachers' confidence in knowledge and implementation of the predictors of postschool success?
3. To what extent will GENERAL ED increase general education teacher use and student access to the predictors of postschool success during instruction?
4. To what extent will GENERAL ED promote possible generalization of the predictors of postschool success to the classroom setting?

5. What are general education teachers' perceptions of the social acceptability and feasibility of the GENERAL ED intervention?

Limitations/Delimitations

Because this study used a single-case research design, external validity is difficult to establish, and the generality of the results were limited due to the number of participants. With that consideration, a single-case, multiple baseline across predictors replicated across participants was used. With this particular single-case research design, prediction, verification, and replication across participants reflected a functional relation between the independent variable and dependent variables. Results were replicated across a second participant, to strengthen external validity (i.e., potential for generalization) of the intervention. To ensure this study was methodologically sound, I adhered to the quality indicators for single-case research (i.e., Horner et al., 2005; IES' WWC SC Guidelines, 2020; Kratochwill et al., 2013), which, with replication, could potentially provide evidence of this intervention leading to the identification of an evidence-based practice.

Next, procedural fidelity, an integral part of experimental research (e.g., single-case research, Horner et al., 2005) occurred differently in this intervention. Procedural fidelity is "the implementation of a research plan, as intended" (Ledford & Gast, 2014, p. 332). Intervention dosage is provided by the researcher, but participants are ultimately responsible for completing the intervention as prescribed. Procedural fidelity was collected on the duration of sessions, which were automatically collected and address DiGennaro Reed and Coddling's (2014) suggestion that "[p]ractitioners and researchers alike might consider how to better match interventionist needs with the interventions employed to promote fidelity" (p. 12). By utilizing

technology to monitor intervention procedural fidelity, it allows participants to login at a time and location convenient for them.

Finally, a potential limitation to this study has to do with the Corona Virus Disease-19 (COVID-19). Delivery of this asynchronous online intervention did not affect the implementation of the independent variable; however, observations were conducted online, as opposed to in person.

Although the limitations of this study must be considered carefully, this study may still provide an intervention that researchers and practitioners could implement and replicate with new participants, research teams, and geographic locations. Replication of this study may increase external validity and could ultimately lead to general education teachers designing instruction to embed the predictors of postschool success, which ultimately will make it more likely that students with disabilities experience postschool success.

Definitions

Attention-deficit/hyperactivity disorder (ADHD): “A diagnostic category of the American Psychiatric Association for a condition in which a child exhibits developmentally inappropriate inattention, impulsivity, and hyperactivity” (Heward, 2013, p. G-2)

College and career readiness: “A student who is ready for college and career can qualify for and succeed in entry-level, credit-bearing college courses leading to a baccalaureate or certificate, or career pathway-oriented training programs without the need for remedial or developmental coursework” (Conley, 2012, p. 1)

Competitive integrated employment: “real work for real pay is the gold standard of transition outcomes for students with disabilities. The work should align with the postschool employment goals of the student and is the desired transition outcome for all students with disabilities who choose to work, regardless of disability or needed accommodations or support. CIE should be a realistic and desirable expectation for all students” (NTACT, 2017, p. 5).

Deaf-blindness: “Any combination of hearing and visual impairments that causes such intensity of sound on a logarithmic scale beginning at zero. Zero decibels refers to the faintest sound a person with normal hearing can detect” (Heward, 2013, p. G-2)

Emotional disturbance: “a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child’s educational performance: (a) An inability to learn that cannot be explained by intellectual, sensory, or health factors; (b) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers; (c) Inappropriate types of behavior or feelings under normal circumstances; (d) A general pervasive mood of unhappiness or depression;

and (e) A tendency to develop physical symptoms or fears associated with personal or school problems. Emotional disturbance includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance under this section” (IDEA, 2004)

Evidence-based practices: activities, strategies, or interventions that have a statistically significant effect on promoting positive student outcomes or other outcomes and are based on strong, moderate, or promising levels of evidence from well-designed and well-implemented experimental, quasi-experimental, or correlational research with statistical controls for selection bias (U.S. Department of Education, 2016)

High-incidence disabilities: High-incidence disabilities “comprise the majority of the special needs populations in schools...The most common disabilities in schools are specific learning disabilities, speech and/or language impairments, intellectual disability, emotional disturbance, and health impairments” (O’Brien et al., 2019, p. 8).

Independent living: occurs when people successfully live in their home and community (Walker & Storey, 2014)

Intellectual disability: “A disability characterized by significant limitations in both intellectual functioning and adaptive behavior as expressed in conceptual, social, and practical adaptive skills; the disability originates before age 18 (AAIDD, 2007). Refers to the same population of individuals who were diagnosed previously with mental retardation” (Heward, 2013, p. G-7).

Other health impairment: A disability category in the Individuals with Disabilities Education Act under which a child is eligible for special education; includes diseases and special health

conditions such as cancer, diabetes, and cystic fibrosis that affect a child’s educational activities and performance” (Heward, 2013, p. G-9)

Language disorder: “Impaired comprehension and/or use of spoken, written, and/or other symbol systems” (Heward, 2013, p. G-8)

Postsecondary education/training: Examples include (a) 2-year or 4-year education programs, (b) adult education, (c) Job Corps programs, (d) workforce development programs, or (e) vocational schools

Postsecondary employment: Working with peers without disabilities for at least 20 hours per week for at least 90 days after leaving high school and earning at least minimum wage (National Post-School Outcome Center, 2010)

Predictors of postschool success (predictors): Based on secondary transition correlational literature, predictors of postschool success are “in-school predictors of improved postschool outcomes for students with disabilities” (Test et al., 2009, p. 178).

Secondary transition: “a free appropriate public education (FAPE) that emphasizes special education and related services designed to meet their unique needs and prepare them for further education, employment and independent living” (IDEA, 2004 [34 CFR 300.43][20 U.S.C. 1401(34)]).

Specific learning disabilities: “A general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities” Heward, 2013, p. G-8)

Speech impairment: “Speech that ‘deviates so far from the speech of other people that it (1) calls attention to itself, (2) interferes with communication, or (3) provokes distress in the

speaker or the listener' (Van Riper & Erickson, 1996, p. 110). The three basic types of speech impairments are articulation, fluency, and voice" (Heward, 2013, p. G-12).

CHAPTER 2: REVIEW OF LITERATURE

Beginning in 1975 with the Education for All Handicapped Children Act, federal legislation focused on educating students with disabilities in schools with peers without disabilities. Over time, federal legislation has evolved to support students with disabilities to prepare for life after high school (e.g., Individuals with Disabilities Education Act [IDEA], 1990). As time progressed, the focus of education for students with disabilities became more inclusive, as IDEA (2004) mandated all students be considered to learn in general education with peers without disabilities. As legislation further evolved, the focus was on the importance of preparing all students, including students with high-incidence disabilities, to be ready for college and careers (e.g., ESSA, 2015). This legislative focus on preparing students with disabilities, including students with high-incidence disabilities, for adult life may likely be attributed to students with high-incidence disabilities and their poor postschool outcomes (e.g., Newman et al., 2011; U.S. Bureau of Labor Statistics, 2021).

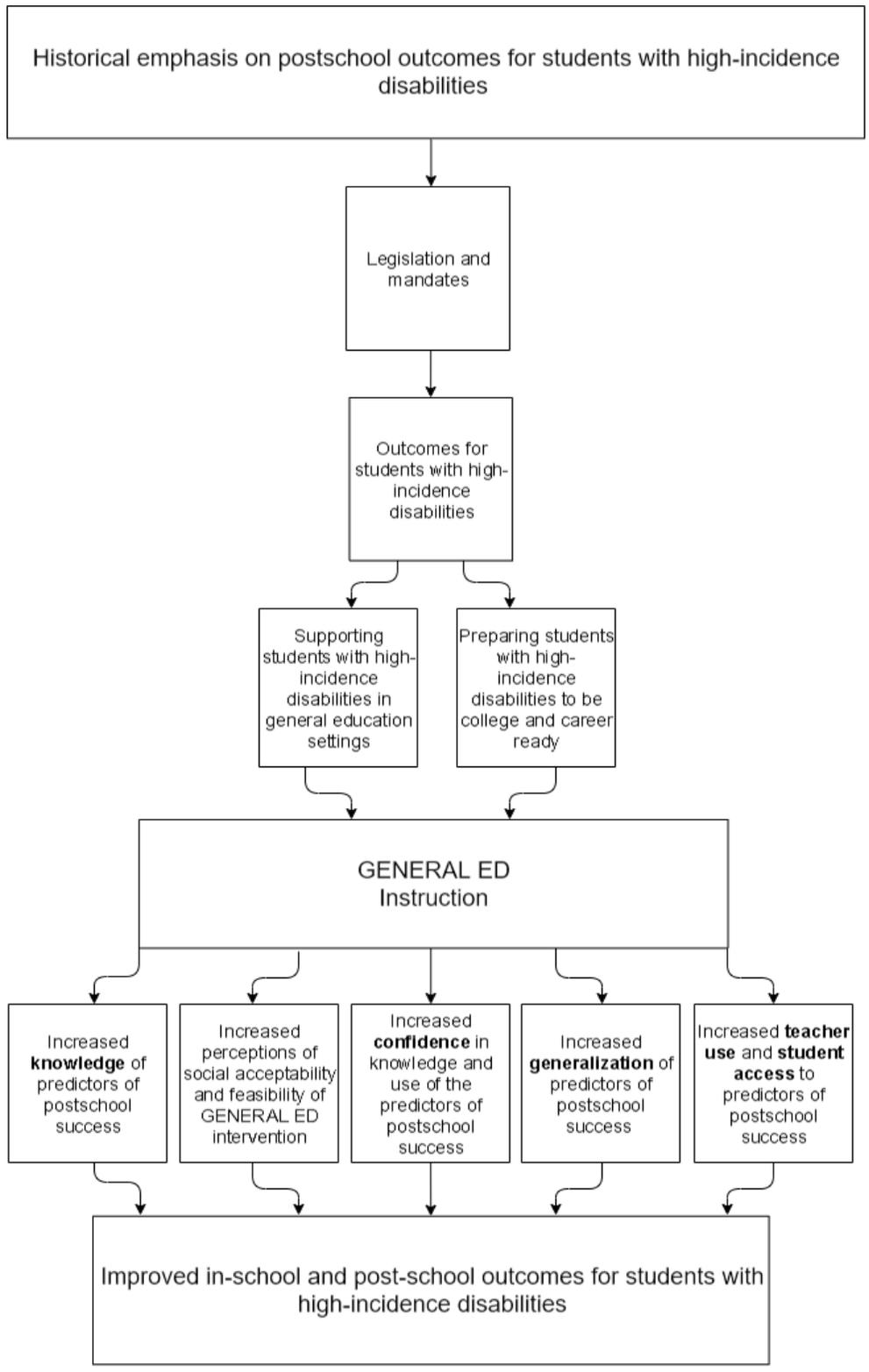
To increase postschool success and prepare all students for college and careers, multiple college and career readiness frameworks (e.g., Conley, 2007, 2008) exist. Given the minimal representation of students with disabilities within college and career readiness frameworks (Monahan et al., 2020) and the overlapping purposes and strategies for secondary transition, it appears necessary to examine secondary transition literature to identify effective strategies for preparing students with high-incidence disabilities for adult life. One example is the predictors of postschool success which have been correlated with improved postschool outcomes for youth with disabilities (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009). The predictors of postschool success can support this preparation for adult life and have been identified as relevant, important, and feasible for implementation by general education teachers (Kwiatek et

al., 2021). Training on the predictors may be a viable option for general teachers to prepare students with high-incidence disabilities to be college and career ready. There is a lack of transition literature on supporting general education teachers' knowledge of transition best practices. This suggests a clear gap in the literature that needs to be addressed to help improve outcomes for students with high-incidence disabilities.

Figure 2 provides a visual depiction of this chapter's review of literature. As highlighted within Figure 2, this review of literature has been organized into four distinct strands including legislation and mandates, outcomes for students with high-incidence disabilities, preparing students with high-incidence disabilities to be college and career ready, and supporting students with high-incidence disabilities in general education settings.

Figure 2

GENERAL ED Logic Model

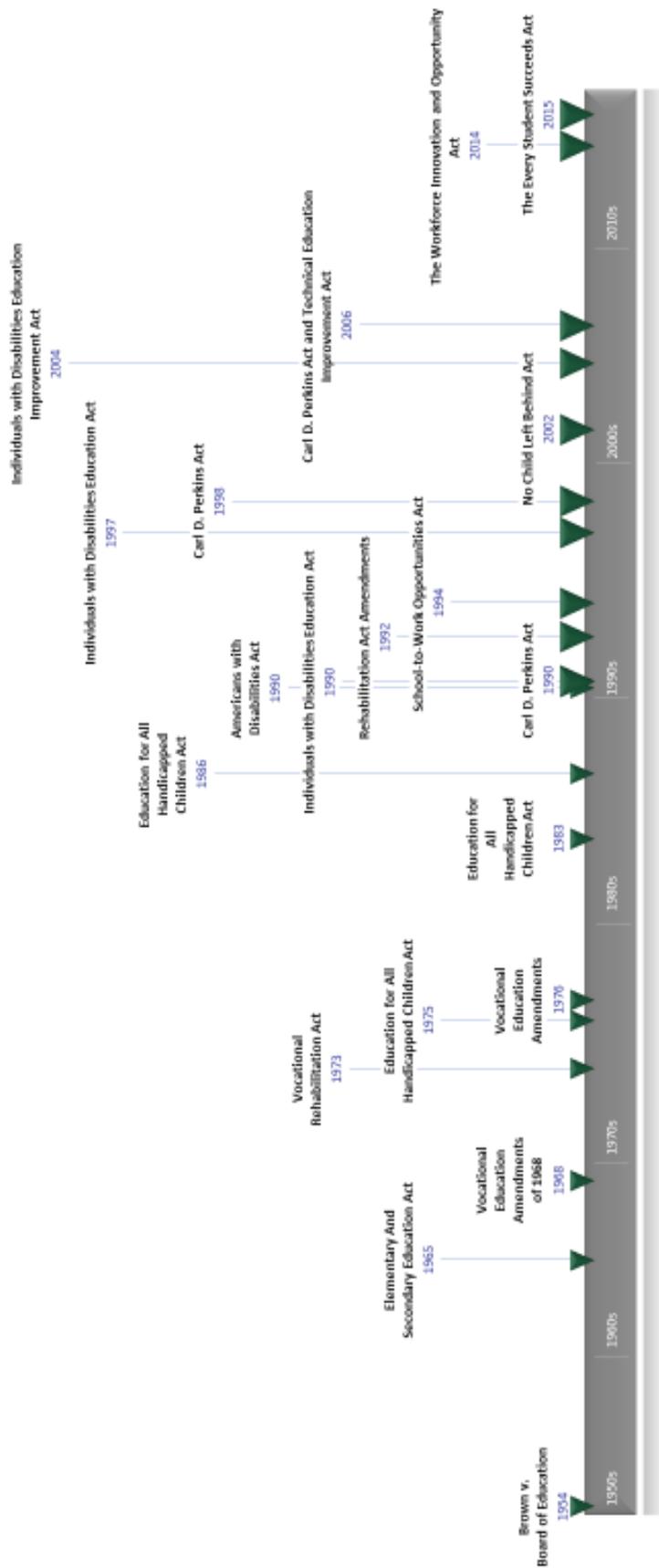


Legislation and Mandates

To address in-school and postschool experiences of students with disabilities, federal legislation has evolved over time. Although many pieces of legislation exist related to education, the pieces of legislation in this section document reforms the United States have taken to increase all students' readiness for college and careers (e.g., ESSA, 2015) and improve the transition to life after high school (e.g., IDEA, 1990). Although an argument could be made to organize this section by focusing on one particular legislation and subsequent amendments, the rationale to discuss legislation chronologically was to provide an overview of evolving federal government supports to ensure students with high-incidence disabilities were prepared to be college and career ready. This strand will begin with the *Brown v. Board of Education* (1954) court case to highlight the beginning of the Civil Rights movement, which documented that separate was not equal for students of color and later for students with disabilities (Yell et al., 1998). Figure 3 provides a timeline of all legislation discussed within this section.

Figure 3

Overview of Federal Legislation to Prepare Students for Adult Life



Note. This timeline contains a chronological overview of legislation discussed within this section.

Brown v. Board of Education, 347 U.S. 483 (1954)

Although this section predominantly focuses on legislation, it is important to consider the role of *Brown v. Board of Education*, a court case that was decided May 17, 1954. *Brown v. Board of Education* overturned the *Plessy v. Ferguson* (1896) ruling of separate but equal; this was relevant for individuals from diverse ethnic and cultural backgrounds in public settings. By overturning *Plessy v. Ferguson*, the *Brown v. Board of Education* case ruling has been cited as a major victory toward achieving civil rights, which provided the constitutionally guaranteed 14th Amendment equal protections to individuals from diverse ethnic and cultural backgrounds (Yell et al., 1998). From this court case, advocates of students with disabilities supported that separate was not equal for students with disabilities, which subsequently paved the way for legislation to promote equal educational access for students with disabilities.

The Elementary and Secondary Education Act of 1965 (P.L. 89-10)

Approximately 20 years later, on April 9, 1965, the Elementary and Secondary Education Act (ESEA) was passed and intended to deliver a quality, fair, and equitable education for all children and to mitigate achievement gaps (Brenchley, 2015). To address this purpose, ESEA provided grants to school districts that served historically underperforming students (e.g., students with disabilities, students from low-income families). The grants could support education-related experiences (e.g., textbooks, library books, special education centers, scholarships to students attending college from historically underperforming groups; Brenchley, 2015). This legislation highlighted the importance of school districts providing supports to underperforming students, including students with disabilities, to prepare them for postschool education.

Vocational Education Amendments of 1968 (P.L. 90-576)

On October 16, 1968, the Vocational Education Amendments were passed. A primary purpose of this legislation was to support improvement of schools and community colleges with technological, educational, and social needs (U.S. Department of Health, Education, and Welfare: Office of Education, 1969). States participating in the program were required to submit an annual plan that outlined information to the federal government, including realistic long-term plans for meeting potential students' vocational education needs (U.S. Department of Health, Education, and Welfare: Office of Education, 1969). Funding mandates included states using at least 15% of vocational education funding for individuals who had academic needs, socioeconomic needs, or disabilities preventing them from succeeding in traditional programming (U.S. Department of Health, Education, and Welfare: Office of Education, 1969). At least 15% of funding was mandated for postsecondary programs, and at least 10% was mandated for individuals with disabilities who would benefit from additional assistance or modified vocational programming (U.S. Department of Health, Education, and Welfare: Office of Education, 1969). The Department of Health, Education and Welfare commissioned the evaluation of these amendments and found that 70% of participating students with disabilities received vocational training in segregated settings (Johnson, 2012). The intent of this mandate was to provide students with disabilities with a range of vocational education opportunities, but "state and local response was minimal" (Johnson, 2012, p. 12). By providing a range of vocational training options (e.g., tailored specialized programming, modified vocational education programming), the legislation intended to ensure students and adults with disabilities were equipped with the skills necessary to contribute to the national workforce (i.e., postschool employment; U.S. Department of Health, Education, and Welfare: Office of Education, 1969).

Vocational Rehabilitation Act of 1973 (P.L. 93-112)

The Vocational Rehabilitation Act of 1973 was passed on September 26, 1973. The Vocational Rehabilitation Act (P.L. 93-112; 1973) provided civil rights for individuals with disabilities by requiring equal opportunities (Section 503) and no discrimination (Section 504) in public education and employment settings (U.S. Department of Education, n.d.b). This was modeled after the Civil Rights Act of 1964 and required the development of individual rehabilitation plans to include a statement of long-range rehabilitation goals, dates of services to be provided, and evaluation procedures (U.S. Department of Education, n.d.b). Specifically, Section 504 guaranteed any qualified individual with a disability shall not be refused participation in, denied benefits of, or discriminated against in any program that receives federal funding. This legislation applied to local education agencies and postsecondary institutions and ensured students with high-incidence disabilities could not be discriminated against because of their disability and provided more inclusive opportunities for students with high-incidence disabilities.

The Education for All Handicapped Children Act of 1975

The Education for All Handicapped Children Act of 1975 was the precursor to the current Individuals with Disabilities Education Improvement Act (IDEA, 2004) and was passed on November 19, 1975. The Education for All Handicapped Children Act (P.L. 94-142) of 1975 mandated children with disabilities ages 3 to 21 shall receive a free and appropriate public education (FAPE) focused on six principles: (a) zero reject; (b) nondiscriminatory testing; (c) appropriate education designed to meet individual student needs that are stated in the IEP; (d) instruction in the least restrictive environment (LRE); (e) due process; and (f) parent participation (Test et al., 2006). The law specifically noted industrial arts, consumer, and home-

making programs as appropriate programs for students with IEPs (Johnson, 2012), which potentially aligned with postschool outcome areas (i.e., education/training, employment, independent living). The law mandated parents, teachers, and other specialists create a minimum of one career education IEP objective (Johnson, 2012) which highlights the importance of students with high-incidence disabilities having in-school experiences preparing students for postschool employment.

The Education for All Handicapped Children Act of 1983 (P.L. 98-199)

The Education for All Handicapped Children Act of 1983 was passed on December 2, 1983. Key reauthorizations of the legislation gave states incentives to serve children with disabilities in preschools and required states to collect information and address issues dealing with students' transition from school to adult life for the first time (Smith, 2005). More specifically, grants and contracts were made with institutions of higher education, state education agencies, local education agencies, and any appropriate public and private nonprofit agencies or institutions (Smith, 2005). This was developed to support students with disabilities' preparation for postsecondary education, vocational training, competitive employment, continuing education, and adult services (Smith, 2005).

The Education for All Handicapped Children Act of 1986 (P.L. 99-457)

The Education for All Handicapped Children Act was reauthorized on October 8, 1986. Two important reauthorization components were (a) mandated services for children ages three to five, which lowered P.L. 94-142 requirements to include children ages three to five; and (b) money for attorney's fees in due process/court cases where parents prevailed (Smith, 2005). In addition, the amendment had three additional purposes related to transition, which were to (a) prepare students with disabilities with life and vocational skills that were needed in preparation

for adult life; (b) conduct research to understand why students with disabilities drop out of school and to prepare curriculum and instructional strategies to prepare students for adult life; and (c) require students with disabilities and parents' involvement in planning, developing, and implementing the projects outlined within these amendments (Johnson, 2012).

The Americans with Disabilities Act (ADA, 1990, P.L. 101-336)

Passed on July 26, 1990, the Americans with Disabilities Act extended civil rights to all individuals with disabilities. These protections were relevant for public sector employment to private sector employment and all services, including transportation, telecommunications, and public accommodations (Test et al., 2006).

Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990 (P.L. 101-392)

Passed on September 25, 1990, the Carl D. Perkins Vocational Education Act of 1990 amended the 1984 act and authorized expansive funds for vocational education. This was done to make the U.S. more globally competitive in the world. Special populations were separated into three categories: (a) disadvantaged students (academically, disadvantaged, migrant populations, LEP, drop-outs, potential drop-outs); (b) students with disabilities and included students covered by IDEA and Section 504; and (c) other categories (sex equity programs, foster children, and individuals in correctional institutions). This legislation provided federal funding to support workforce readiness programs for students with disabilities to be prepared for postschool employment (Lent & Worthington, 1999).

The Individuals with Disabilities Education Act of 1990 (IDEA, P.L. 101-476)

IDEA (1990) was reauthorized and renamed on October 30, 1990 and directly addressed transition issues for students with disabilities. The name changed to IDEA from Education for

All Handicapped Children Act to reflect person-first language. Reauthorization of the law required a statement of needed transition services be included in every student's IEP who is 16 or older. This legislation defined transition as a coordinated set of activities to promote student success in postschool environments. For the first time, IDEA required schools to collect data on three postschool outcome areas, which were postsecondary education, vocational training/integrated employment, and independent living. To prepare students for life after high school, student transition activities were required to be based on student strengths, preferences, and interests. IDEA required inclusion of employment and other adult living objectives. As needed, students were to be provided access to functional vocational assessments and acquisition of daily living skills (Martin et al., 1993). Additionally, IDEA mandated schools to begin transition services no later than 16 (Smith, 2005).

School-to-Work Opportunities Act of 1994 (P.L. 103-239)

The School-to-Work Opportunities Act of 1994 was passed on May 4, 1994 and was focused on general education's involvement in preparing all students for adult life. Similar to IDEA's (1990) transition provisions, this law required secretaries of education and labor work collaboratively to improve outcomes of secondary and postsecondary education (Test et al., 2006). Key elements were (a) collaborative partnerships, (b) integrated curriculum, (c) technological advances, (d) adaptable workers, (e) comprehensive career guidance, (f) work-based learning, and (g) a step-by-step approach (Test et al., 2006). There were three major components, which were school-based learning, work-based learning, and connecting activities between school and employers (Test et al., 2006). This legislation focused on all students, not just students with disabilities, and how all teachers, including general education teachers, can provide support in the transition process from high school to postschool life.

Individuals with Disabilities Education Act of 1997 (P.L. 105-17)

On June 4, 1997, IDEA (1997) was reauthorized and included several key component changes from IDEA (1990). This included requiring schools to (a) begin transition planning no later than 14 and (b) include behavior intervention plans for students with behavioral support needs (Smith, 2005). It also required (a) a statement on how a student's disability affects involvement and progress in the general curriculum; (b) a statement identifying services to support students' participation in the general curriculum; (c) an explanation about the extent to which a student could not participate in general education classes; (d) the inclusion of students with disabilities in district and state testing (with accommodations) or be assessed with an alternative assessment; and (e) the participation of general education teachers in every IEP meeting, which would include transition planning meetings.

Carl D. Perkins Vocational and Applied Technology Education Amendments of 1998 (P.L. 105-220)

Passed on October 31, 1998, these amendments to the Carl D. Perkins Act of 1990 were intended to improve secondary and postsecondary students' quality of academic, vocational, and technical skills through vocational and technical education programs. To address this purpose, four actions were taken, including (a) building on state and local efforts to create challenging academic standards; (b) promoting the creation of activities and services, which integrate vocational, academic, and technical instruction to link secondary and postsecondary education for students who participate in vocational and technical education; (c) providing additional flexibility at the local level to create, implement, and improve the quality of vocational and technical education; (d) disseminating research nationally; and (e) providing professional development and technical assistance to improve vocational and technical education services,

activities, and programs. This legislation provided guidance on “equal access to recruitment, enrollment and placement activities that are supported through this legislation” to prepare students with high-incidence disabilities to be college and career ready (Halpern, 1999, p. 5).

The No Child Left Behind Act of 2001 (P.L. 107-110)

To reauthorize the ESEA of 1965, NCLB was signed into law on January 8, 2002 and held teachers accountable for all students, regardless of family background, race, or disability status to meet high academic standards (U.S. Department of Education, 2002). It included accountability for results, created flexibility at state and local levels, expanded options for parents of children from disadvantaged backgrounds, increased teacher quality, promoted English proficiency, and mandated the use of teaching methods with research to support their use (Test et al., 2006). Furthermore, NCLB mandated all teachers use practices that have scientific research for all students, including for students with high-incidence disabilities (U.S. Department of Education, 2002). Because general education teachers are required to prepare students with high-incidence disabilities to be ready for adult life, this legislation highlights the necessity of general education teachers to have knowledge of and use practices supported by scientific research to prepare students for life after high school.

The Individuals with Disabilities Education Improvement Act of 2004 (P.L. 108-446)

IDEA (1997) was reauthorized on December 3, 2004, with a name change to the Individuals with Disabilities Education Improvement Act (2004). This legislation clarified a free appropriate public education (FAPE) as intended to prepare students for education, employment, and independent living. With this reauthorization, transition services emphasized services aligning with a results-oriented process to improve academic and functional achievement for students with disabilities. Vocational education was added to the list of transition services, and

students' strengths, preferences, and interests were to be considered to support students' transition needs. Also, IDEA changed the transition age back to 16 from 14. States were provided the allowance to select the appropriate transition age for their students. Also, IDEA mandated that IEPs included postsecondary transition goals based on age-appropriate transition assessments and describe transition services, including course of study, to help ensure students reach their postschool goals. Additionally, schools were required to provide students with a summary of performance document that included present levels of academic and functional achievement, postschool goals, and transition needs. Finally, IDEA (2004) required special education teachers to be highly qualified if they taught content-specific coursework (Smith, 2005).

Carl D. Perkins Act and Technical Education Improvement Act of 2006 (P.L. 98-524)

Since its inception in 1984, the Carl D. Perkins Act has mandated that states guarantee students from special populations have equal access to vocational education (Johnson, 2012). Major revisions, passed on August 12, 2006, included (a) changing the terminology from vocational education to career technical education, (b) keeping Tech-Prep Program funding separate from legislation, (c) mandating new program of study requirements to link academic and technical content between secondary and postsecondary education, and (d) promoting the importance of rigorous academic standards and accountability measures for both academic and technical skills (Johnson, 2012). The importance of this legislation was to further refine practices to ensure students are prepared for postschool employment. Given the connection between secondary and postsecondary education, this legislation highlights how general education teachers can prepare students to be career ready.

The Workforce Innovation and Opportunity Act (WIOA, 2014, P.L. 113-128)

Passed on July 22, 2014, WIOA (2014) amended the Workforce Investment Act of 1998. It was designed to support job seekers with accessing education, training, employment, and support services to be successful in the labor market and help match employers with skilled workers to be competitive in the global economy (U.S. Department of Labor, n.d.). WIOA improved services for individuals with disabilities, including (a) accessibility to employment and training services, (b) the receipt of pre-employment transition services (pre-ETS), (c) state-reserved 15% of federal funding for vocational rehabilitation agencies to devote to pre-ETS services, (d) a committee devoted to increasing competitive integrated employment, and (e) state vocational rehabilitation agencies to work with employers to help improve employment outcomes (U.S. Congress, n.d.). Pre-ETS includes five required activities, which are (a) job exploration counseling; (b) work-based learning experiences that can be provided in-school, after school, or within the community; (c) counseling on enrollment in comprehensive transition or postsecondary educational opportunities; (d) workplace readiness training on social skills and independent living; and (e) self-advocacy instruction, which includes peer mentoring. Pre-ETS are intended to prepare students with disabilities, during high school, for postschool employment.

The Every Student Succeeds Act of 2015 (P.L. 115-224)

The reauthorized NCLB (2002), ESSA continued support for students from high-need backgrounds (U.S. Department of Education, n.d.a). Passed on December 10, 2015, one novel aspect of this legislation was the requirement that every student be prepared with high academic standards to prepare them for college and career success (U.S. Department of Education, n.d.a). To assess student progress toward college and career readiness, critical information on

mandatory statewide assessments to measure college and career readiness must be provided to education professionals, families, students, and their communities (U. S. Department of Education, n.d.a). Also, expectations were maintained for accountability and action to promote positive change in schools where students were not making progress and where graduation rates have remained low over time (U.S. Department of Education, n.d.a). Lastly, supports were provided for using evidence-based interventions for all students.

Conclusion

Legislation has evolved to support individuals with disabilities, based on court cases emphasizing the importance of civil rights (e.g., *Brown v. Board of Education*). The first piece of federal legislation focusing on the education of students with disabilities was the Education for All Handicapped Children Act of 1975. Since that time, the Education for All Handicapped Children Act of 1975 has continued to evolve to support students with disabilities in preparation for adult life. In 1990, when the Education for All Handicapped Children Act became the Individuals with Disabilities Education Act, secondary transition was legally mandated for the first time to support students with disabilities' preparation for life after high school. In 1997, moving to a results-oriented process, IDEA was further refined to provide additional supports and guidance (e.g., the inclusion of general education teachers on IEP teams). This was not the first piece of legislation to provide supports for general education involvement in preparing students for adult life. In the School-to-Work Opportunities Act of 1994, general education teachers were involved in preparing all students for the world of work, which would include students with high-incidence disabilities. Since that time, legislation has evolved further to ensure the use of research-based and evidence-based instructional practices to support their use with students (e.g., IDEA, 2004; NCLB, 2002). Legislation has continued to evolve to prepare

students for life after high school (e.g., the Workforce Innovation and Opportunity Act, 2014). The need for using effective practices has been reaffirmed and updated with ESSA (2015). Although students with high-incidence disabilities experience less success than peers without disabilities, federal legislative mandates have focused on preparing all students for adult life (e.g., School-to-Work Opportunities Act) in their least restrictive environment with access to the general curriculum (IDEA, 2004), which the majority of students with high-incidence disabilities spend part, if not most or all, of their day in inclusive settings (NCES, 2017), and have additional specific mandates to provide supports to students with disabilities (e.g., IDEA, 2004). While these mandates have provided guidance to educators to address postschool outcomes, the continual reflection and ongoing adjustments to federal legislation appears to have been impactful for supporting students with disabilities, as they prepare for life after high school. Many of these legislative mandates provide explicit guidance to all educators (e.g., School-to-Work Opportunities Act, NCLB, ESSA) and provide specific guidance for general education teachers in preparing all students to be ready for college and careers. Similar to the evolution of these legislative mandates, postschool outcomes have also evolved and changed over time.

Outcomes for Students with High-Incidence Disabilities

Students with high-incidence disabilities “are the most prevalent among children and students with disabilities in U.S. schools” (Gage et al., 2012, p. 168) and include students with specific learning disabilities, speech or language impairment, intellectual disability, emotional disturbance, or other health impairments (O’Brien et al., 2019). Confirmed by the 41st Annual Report to Congress, students with these specific disabilities were among the most prevalent, including (a) specific learning disabilities (38.2%), (b) speech or language impairment (16.6%), (c) other health impairments (15.8%), (d) intellectual disability (6.8%), and (e) emotional

disturbance (5.5%; U.S. Department of Education, 2020). All other disabilities combined totaled 17.2% (U.S. Department of Education, 2020).

Outcomes for Students with High-Incidence Disabilities

In the field of secondary transition, it is customary to begin with discussing students' poor postschool outcomes (Kohler & Field, 2003). The focus on postschool outcomes suggests the urgency of preparing students with disabilities for adult life and highlights the need for implementation of effective programs and practices. Students with disabilities experience poor postschool outcomes when compared to students without disabilities across education/training, employment, independent living outcome areas (e.g., Newman et al., 2011). To gain a better understanding of in-school and postschool outcomes for students with disabilities, it may be important to examine specific outcomes to highlight the disparity between students with and without disabilities. This strand will depict the in-school and postschool outcomes for students with high-incidence disabilities.

In-School Outcomes of Students with High-Incidence Disabilities

Students with high-incidence disabilities have lower rates of success related to in-school outcomes when compared to peers without disabilities and compared to students with different disabilities (e.g., Lipscomb et al., 2017a, 2017b). It also is important to examine how students with high-incidence disabilities compare to students with different high-incidence disabilities and students with low-incidence disabilities in terms of in-school outcomes.

Students who have intellectual disability or emotional disturbance are the most socioeconomically challenged groups of individuals when compared to peers with other disabilities (Lipscomb et al., 2017b). Students with intellectual disability (72%), emotional disturbance (62%), and specific learning disability (61%) were more likely to come from low-

income households, compared to the average of all students with disabilities (58%; Lipscomb et al.). In comparison, youth with speech-language disorders (49%) and other health impairments (48%) were among the least likely students with high-incidence disabilities to experience similar socioeconomic challenges (Lipscomb et al., 2017b).

In relation to health, communication, and independent functioning, students with high-incidence disabilities were reported to have the most difficulty (Lipscomb et al., 2017b). For example, students with intellectual disability were less likely to independently complete daily independent living tasks (e.g., using an automated teller machine [ATM, 16%]) than the total percent of all students with IEPs (37%); furthermore, students with intellectual disability had lower rates of independent living task completion than students with (a) specific learning disability (45%); (b) speech or language impairment (40%); (c) emotional disturbance (40%); or (d) other health impairments (37%; Lipscomb et al., 2017b). Students with intellectual disability (48%) were less likely to choose activities to do with friends than the total percentage of students with disabilities (56%); furthermore, students with intellectual disability were less likely to choose activities to do with friends than their peers with specific learning disability, other health impairments, speech or language impairment (57% respectively), or emotional disturbance (60%; Lipscomb et al., 2017b). Also, students with intellectual disability (57%), emotional disturbance (59%), and other health impairments (63%) were less likely than the average of all students with disabilities (64%) to report involvement in school sports and clubs (Lipscomb et al., 2017b). More specifically, they were less likely than peers with other health impairments (63%), specific learning disability (66%) or speech or language impairment (73%) to participate in school sports and clubs. Students with emotional disturbance were reported, on average, to be suspended (65%), expelled (19%), and arrested (17%) at rates over two times higher than the average rates

of students with other disabilities (Lipscomb et al., 2017b). In addition, students with emotional disturbance were reported the most likely to be teased (48%; Lipscomb et al., 2017b). To address these less successful postschool outcomes for students with high-incidence disabilities, education professionals may consider using promising, research-based, and evidence-based predictors to address these outcomes. Based on these data, self-care/independent living skills, self-determination/self-advocacy, social skills, and youth-autonomy/decision-making skills appear ideal predictors for practitioners to prepare students in high school to be more likely to experience improved postschool outcomes (Mazzotti et al., 2016, 2021; Test et al., 2009).

In addition, academic in-school experiences indicate differences between students with high-incidence disabilities (Lipscomb et al., 2017b). For example, students with intellectual disability were among the least likely to receive academic support, beyond academic accommodations (Lipscomb et al., 2017b). Students with intellectual disability were the most likely to receive modified assignments (more than half) and participate in modified testing (approximately two-thirds), but they were between 16% to 25% less likely than the total average of students with disabilities (72%) to receive additional academic support outside of the school day (Lipscomb et al., 2017b). In addition, parents of students with emotional disturbance were least likely to report supporting their child with homework assistance each week (54% compared to 62% of all students with IEPs; Lipscomb et al., 2017b). It is worth noting, of all disability categories, students with some high-incidence disabilities represented lower rates of graduation (e.g., 42% of students with ID, 58% of students with ED) than peers with other high-incidence disabilities (e.g., 74% of students with OHI, 76% of students with SLD; U.S. Department of Education, 2020). There appears to be a need to prepare students in high school to experience improved postschool outcomes, and the predictors of postschool success appear relevant. Based

on these data, inclusion in general education and student support, which have been correlated to improved postschool outcomes for students with disabilities, could be used to potentially address these less successful outcomes for students with high-incidence disabilities (Mazzotti et al., 2016, 2021; Test et al., 2009).

Lastly, it is important to note students with intellectual disability were least likely of all students with a disability to prepare for college and postsecondary employment (Lipscomb et al., 2017b). Of the 76% of all students with disabilities who planned to enroll in postschool education, only 50% of students with intellectual disability enrolled in postschool education (Lipscomb et al., 2017b). Also, only 24% of students with intellectual disability reported having completed a college entrance exam, compared to the 42% average of all students with disabilities (Lipscomb et al., 2017b). Students with other health impairments (9%), specific learning disability (10%), and speech or language impairment (5%) had lower rates of paid or unpaid school-sponsored work than the average of students with disabilities (12%) or students with intellectual disability (22%; Lipscomb et al., 2017b). In contrast, youth with intellectual disability (32%) had lower rates of competitive employment than the overall percentage of students with disabilities (40%), emotional disturbance (42%), speech or language impairment (42%), or specific learning disability (45%; Lipscomb et al., 2017b). Also, parents of students with intellectual disability were less likely to report expecting their children to have postsecondary education experiences (32% to 53% vs. 61%) and, as adults, live independently (35% to 49% vs. 78%; Lipscomb et al., 2017b). These data reflect the need for students with high-incidence disabilities to be prepared with skills and experiences necessary to support goal setting, career awareness, paid employment/work experience, parent expectations, student support, and transition programming in high school, all of which are predictors of postschool

success (Mazzotti et al., 2016, 2021; Test et al., 2009). Practitioners can implement these predictors in high school to make it more likely students with high-incidence disabilities experience more successful in-school and postschool outcomes.

Summary. It is clear that students with high-incidence disabilities are experiencing less successful in-school outcomes when compared to the overall percentage of students with disabilities (Lipscomb et al., 2017b). Moreover, students with high-incidence disabilities have less successful in-school outcomes when compared to students with different disabilities (e.g., students with EBD's suspension and expulsion rates, students with intellectual disability's lack of academic support outside of school; Lipscomb et al., 2017b). Considering these poor in-school outcomes (e.g., goal-setting challenges, academic support needs, independent functioning skills, lower rates of employment), it is understandable why students with high-incidence disabilities experience poor postschool outcomes. It is important to consider the in-school experiences that are correlated with improved postschool outcomes to prepare students to be ready for adult life. Considering the data on in-school outcomes and the predictors of postschool success, it is important to examine postschool outcomes for students with high-incidence disabilities.

Postschool Outcomes of Students with High-Incidence Disabilities

With the passage of IDEA (1990), schools were mandated to collect and examine postschool outcome data for students with disabilities. Data from outside the field of education highlight and substantiate disparities in postschool outcomes (e.g., lower rates of postsecondary education completion; Taylor, 2018) of students with high-incidence disabilities (e.g., lower rates of postsecondary education enrollment and completion; Newman et al., 2011). IDEA (2004) currently mandates data collection and examination of education/training, employment,

and independent living outcomes. An overview of outcome data for students with high-incidence disabilities will be examined and categorized within those three broad outcome areas.

Education and Training

The National Longitudinal Transition Study (NLTS) was a 5-year study that collected data from more than 8,000 students with disabilities, ages 13 to 21, who had an IEP from the 1985-1986 school year. The NLTS was the first examination of postschool outcomes, using a nationally representative sample. For education and training, students with disabilities made gains from the NLTS to the subsequent study conducted 10 years later (i.e., NLTS-2) in terms of postsecondary education (Blackorby & Wagner, 1996; Newman et al., 2011). Although 10-years-old, it is important to examine NLTS-2 with other data sources to understand national samples of outcomes for students with disabilities. When compared to peers without disabilities, students with high-incidence disabilities were less likely to: (a) enroll in postschool education (e.g., 2-year) than peers without disabilities (60% compared to 67%) and (b) enroll in 4-year university programs (19% vs. 40%). More specifically, students with intellectual disability (28.7%) and emotional disturbance (53.0%) had far lower rates of enrollment in any postschool education than peers with speech or language impairment (66.0%), specific learning disabilities (66.8%), or other health impairments (65.7%; Newman et al., 2011). Specific to 4-year programs, students with speech or language impairment (32.5%), specific learning disabilities (21.2%), and other health impairments (19.6%) had higher rates of enrollment than their peers with emotional disturbance (10.8%) or intellectual disability (6.7%; Newman et al., 2011). Further, students with intellectual disability (44.2%), speech or language impairment (43.8%) learning disability (40.9%), and other health impairments (40.4%) had higher rates of

postsecondary education completion than peers with emotional disturbance (35.1%; Newman et al., 2011).

Based on United States Census data, individuals with high-incidence disabilities reported completing some college or earning associate degrees at lower rates than individuals without disabilities (Taylor, 2018). Students with emotional disturbance and intellectual disability had lower rates of earning a bachelor's degree or higher when compared to peers without disabilities (43%; Newman et al., 2011). Also, individuals with emotional disturbance (53%) or intellectual disability (29%) enrolled in postsecondary education at rates far lower than peers with other high-incidence disabilities (e.g., 66.8% of students with specific learning disabilities; Newman et al., 2011).

Of the percentage of students enrolled in full-time coursework, students with high-incidence disabilities vary (Newman et al., 2011). For example, students with specific learning disabilities (74%) and speech or language impairment had higher rates of full time coursework enrollment than peers with intellectual disability (46%) or emotional disturbance (Newman et al., 2011). Finally, variability exists in the percentage of consistent postsecondary enrollment throughout the school year among students with high-incidence disabilities. Similar to students without disabilities enrolling in full-time coursework, students with specific learning disabilities (82%), speech or language impairment (78%), and other health impairments (69%) have higher rates of consistent enrollment than peers with emotional disturbance (58%) or intellectual disability (45%). To support students in attaining positive postschool education outcomes, practitioners could consider aligning instruction to the research-based and evidence-based predictors of postschool education success, including career technical education, goal setting, parent expectations, program of study, self-advocacy/self-determination, student support,

transition program, and youth autonomy/decision-making (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009).

Employment

Since the passage of IDEA (1990), schools have been mandated to collect and examine outcome data for students with disabilities. To understand employment trends within 5 years of exiting high school, Blackorby and Wagner (1996) examined NLTS data. Results indicated growth of 11 percentage points for students with disabilities' competitive employment between 2 and 3 years after high school, but students with disabilities were between 12% and 13% lower than students from the general population (Blackorby & Wagner, 1996). Specific to students with high-incidence disabilities, students with learning disabilities (65.4%) and speech or language impairment (65.4%) had higher rates of employment between 3 and 5 years of exiting high school than peers with emotional disturbance (47.4%), other health impairments (39.8%), or intellectual disability (37.0%; Blackorby & Wagner, 1996).

Based on NLTS-2 data 8 years after exiting high school, percentages of individuals with disabilities employed at the time of data collection ranged from 30% to 67%, depending on disability classification (Newman et al., 2011). To disaggregate results, students with certain high-incidence disabilities had higher rates of employment at the time of data collection, including students with specific learning disabilities (67.3%), speech or language impairment (63.9%), and other health impairments (64.4%) compared to lower rates experienced by students with emotional disturbance (49.6%) or intellectual disability (38.8%; Newman et al., 2011).

In contrast, when considering ever having been employed, there was an increase in percentages of individuals who had ever been employed within 8 years of exiting high school (Newman et al., 2011). Students with other health impairments (95.5%), specific learning

disabilities (94.9%), speech or language impairment (94.0%), and emotional disturbance (91.2%) had higher rates of ever holding employment than peers with intellectual disability (76.2%; Newman et al., 2011). In terms of number of jobs and duration of employment, students with emotional disturbance had the highest number of jobs on average with the lowest duration (4.6 jobs, 18.8 months), compared to students with specific learning disabilities (4.2 jobs, 24.3 months), speech and language impairment (3.8 jobs, 19.7 months), other health impairments (4.5 jobs, 21.6 months), and intellectual disability (2.9 jobs, 25.9 months; Newman et al.). Like with education, practitioners may consider preparing students in high school for life after high school by using strategies that have been correlated to improved postschool employment success, including career awareness, career technical education, interagency collaboration, occupational courses, paid-employment/work experiences, program of study, self-advocacy/self-determination, transition program, and work study (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009).

Independent Living

Independent living is a broad category, which encompasses multiple aspects of life. Some aspects of independent living include (a) community engagement, (b) household circumstances, and (c) financial independence (Newman et al., 2011).

Community Engagement. Community engagement encompasses one part of independent living. Data appear to suggest an increase in community engagement the longer students have exited high school. Considering the more time students have to engage in the community, it seems logical that students could find novel or additional opportunities in which to engage with their communities the longer they have been out of high school. For only engaging in the community through employment, students with intellectual disability (39.2%) had the

highest percentage of engagement, followed by students with emotional disturbance (37.6%), and students with speech or language impairment having the lowest percentage of engagement only through employment of all high-incidence disabilities categories (25.5% Newman et al., 2011). For engaging in the community through employment and postsecondary education, students with speech or language impairment (53.3%), specific learning disabilities (47.7%), and other health impairments (46.8%) had the highest rates of engagement, whereas students with intellectual disability (15.5%) had the lowest rates of engagement (Newman et al., 2011). Students with intellectual disability had the highest rates of no engagement (20.8%) of all students with high-incidence disabilities, which was followed by students with emotional disturbance (6.1%; Newman et al., 2011).

Household Circumstances. Household circumstances are another aspect of independent living. Within this context, living independently refers to living on their own, with a spouse, with a partner, or with a roommate (Newman et al., 2011). Semi-independent living means not living within their parent's home and includes living in a college dormitory, military housing, or a group home (Newman et al., 2011). At the time of data collection, 44.7% of students with disabilities were living independently, which was lower than 59.0% of peers without disabilities (Newman et al., 2011). Rates of independent living since leaving high school were highest for students with specific learning disabilities (64.9%), emotional disturbance (63.1%), and other health impairments (58.2%; Newman et al., 2011) For students with speech or language impairment (51.2%) or intellectual disability (36.3%), they experienced lower rates of independent living since exiting high school (Newman et al., 2011). Students with specific learning disabilities (5.2%), other health impairments (5.8%), and speech or language impairment (5.0%) had higher rates of semi-dependent living since exiting high school compared

to peers with emotional disturbance (2.8%) or intellectual disability (0.2%; Newman et al., 2011). In terms of residential independence, there were varying levels of satisfaction with living arrangements (Newman et al., 2011). Of the students with high-incidence disabilities, students with intellectual disability (76.7%) had the highest levels of satisfaction, followed by students with emotional disturbance (72.5%), speech or language impairment (70.9%), specific learning disabilities (68.2%), or other health impairments (68.1%; Newman et al., 2011).

Financial Independence. Financial independence is another way to highlight the disparity between outcomes between students with high-incidence disabilities. Some aspects of financial independence include having a savings account, checking account, and credit card. As has been highlighted in other aspects of postschool outcomes, use of savings account changes by disability category (Newman et al., 2011). Of students with high-incidence disabilities, percentages of having a savings account ranged from 42% (i.e., students with intellectual disability) to 65% (i.e., students with speech or language impairment; Newman et al., 2011). There is a range of percentages of students with disabilities who have a checking account (Newman et al., 2011). With that in mind, there is a larger percentage of differences between students with high-incidence disabilities ranging from 29% (i.e., students with intellectual disability) to 66% (i.e., students with speech or language impairment; Newman et al., 2011). It is noteworthy, with checking accounts, that students with intellectual disability were 13% less likely to have a checking account, but students with speech or language impairments were about as likely to have both a checking and savings account (Newman et al., 2011). In terms of credit card use, overall rates of use were lower when compared to having a checking or savings account (Newman et al., 2011). Students with speech or language impairments were the most likely to have a credit card (52%), followed by students with other health impairments (48%), and

students with specific learning disabilities (47%; Newman et al., 2011). The students least likely to have a credit card were students with intellectual disability (19.0% Newman et al., 2011). Similar to employment and education, educators may consider preparing students with experiences in high school correlated with improved postschool independent living success. Specific promising and research-based predictors correlated with improved independent living outcomes include goal-setting, psychological empowerment, self-care/independent living, self-advocacy/self-determination, self-realization, student support, and youth autonomy/decision-making (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009).

Summary

Students with high-incidence disabilities have lower rates of postschool education/training, employment, and independent living outcomes when compared to peers without disabilities (e.g., Newman et al., 2011). These poor postschool outcomes have been well documented for over 30 years. Between data from the NLTS and NLTS-2, it is clear students with high-incidence disabilities have continued to make modest gains in all outcome areas (e.g., Blackorby & Wagner, 1996; Newman et al., 2011). One possible explanation for these gains could be attributed to evolving federal legislation and mandates which have fostered data-based examination of postschool outcomes and provided systemic supports for students with and without disabilities to successfully prepare for their transition to adult life or, worded differently, to be college and career ready. To support students in attaining postschool outcomes, practitioners should consider implementing and aligning programs and practices with the predictors of postschool success (Mazzotti et al., 2016, 2021; Test et al., 2009). By implementing the research and evidence-based, in-school predictors of postschool success in general education classes that include students with high-incidence disabilities, it is more likely all students will be

prepared for college and careers, ultimately leading to positive community living experiences and quality of life.

Preparing Students with High-Incidence Disabilities to Be College and Career Ready

Even with the evolution of federal legislation to prepare all students, students with high-incidence disabilities experience less success than their peers without disabilities. Broadly, students with high-incidence disabilities experience less success than peers with and without disabilities in education/training, employment, and independent living. In 1990, IDEA mandated the use of transition services to prepare students for life after high school. Since that time, ESSA (2015) has mandated all students be ready for college and careers. Considering that legal mandate, it is important to examine college and career readiness. Within this strand, multiple facets of college and career readiness will be discussed. The topics discussed will include a discussion of general components of college and career readiness, college and career readiness frameworks, and the implementation of college and career readiness.

General Components of College and Career Readiness

To promote college and career readiness for all students, the UChicago Consortium on School Research (i.e., Nagaoka et al., 2014; Roderick et al., 2009; Vargas, n.d.) provided guidance to practitioners, schools, and districts to prepare students to be ready for college and careers. Additionally, researchers have provided general guidance on college and career readiness for all students (e.g., Fletcher et al., 2018). Examining these suggestions for implementing college and career readiness will be critical to understanding how to prepare all students, including students with high-incidence disabilities, to be ready for life after high school.

UChicago Consortium on School Research

To address concerns that students may experience frustration and a lack of success as they prepare to begin their postsecondary experience, Vargas (n.d.) offered suggestions of promising components to prepare all students to be college and career ready. Specifically, Vargas identified the goal of every student completing at least one postsecondary credit-bearing course in English or mathematics prior to exiting high school. Depending on the student's level of college readiness, Vargas offered different guidance to prepare students to be ready for college and careers. Refer to Table 1 for a complete list of college strategies (Vargas, n.d.). Suggestions like dual enrollment courses and progression in a program of study align with the predictors of postschool success (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009).

Table 1

College Readiness Suggestions

Description of	Suggestion	Description
Student College Readiness		
Student college ready by 12 th Grade	<ul style="list-style-type: none"> • Dual enrollment courses • Progression in a program of study 	<ul style="list-style-type: none"> • Taking classes in high school that count for both credit in high school and college with successful course completion • Completing a gateway course that is credit bearing before the second semester of senior year that would count toward postsecondary certification/degree
Students not college ready by 12 th grade	<ul style="list-style-type: none"> • Transition courses • Dual enrollment with co-requisite course for academic support 	<ul style="list-style-type: none"> • Taking courses in 12th grade to prepare students to complete at least one dual enrollment course in mathematics or English before exiting high school • Taking co-requisite courses to provide supplemental instruction, peer learning opportunities, and tutoring to support students for the dual enrollment course

All 12th grade students, regardless of readiness

- College success course
- Participating in a course that prepares students to become acclimated with routines and habits of successful college students
- Community service and internships
- Engaging in community service, internships, school-based enterprises, and capstones to maximize local learning opportunities

Vargas, J. (n.d.). Why 12th grade must be redesigned now – and how.

<https://consortium.uchicago.edu/>

In addition to Vargas (n.d.), Roderick et al. (2009) offered policy suggestions for increasing college readiness for students. First, schools should develop accurate college readiness indicators and have accountability measures for student college readiness preparation. School systems must support educators with designing engaging instruction that prepares students with skills and knowledge to be ready for college. Next, states and districts should adopt policies to send clear messages to students about necessary steps to prepare for college; although the article did not include specific suggestions, it is important for states and districts to emphasize the importance through incentives for students documenting high-quality performance. As noted by Roderick et al., these suggested strategies will not ensure college readiness, but they can be combined in an effort to implement multiple strategies, especially if coupled with college access.

In a white paper, Nagaoka et al. (2014) implemented a four-phase project to examine and synthesize research, expert opinion, and practitioner expertise to develop a framework to prepare young adults for college and careers in the 21st Century. The proposed framework included three building blocks: (a) mindsets, (b) knowledge and skills, and (c) awareness. First, mindsets focused on beliefs and attitudes toward oneself, the world, and the interactions between oneself and the world. Mindsets included self-efficacy, openness to new experiences, relevance of task values on a person or a person's future, optimism, growth mindset, and a sense of belonging. Mindsets are critical for all students to believe they have the skills necessary to accomplish their goals.

Second, within knowledge and skills, there were five categories, which were (a) content knowledge and skills, (b) technical knowledge and skills, (c) cultural knowledge and skills, (d) instructional knowledge and skills, and (e) professional knowledge and skills. Content

knowledge can be thought of as knowledge and skills learned in school related to core content areas (e.g., reading, writing). Technical knowledge and skills refer to specialized information about task completion (e.g., work-related knowledge and skills, machine operation, tools, software) and using skills and tools to complete a given task. Cultural knowledge and skills refer to understanding people from different backgrounds (e.g., racial, ethnic, cultural) and the ability to move between other cultural contexts. Institutional knowledge and skills are the understanding of how universities, workplaces, and communities function and how youth can overcome challenges and achieve goals within various settings. Professional knowledge and skills include understanding expected behaviors (e.g., workplace etiquette) in workplace settings and the skills to be successful in a job and the labor force.

Third, awareness focuses on the help young adults need to find success with individualized goals. Awareness is paying attention to a particular task, object, or person. Self-awareness is one part of awareness and is “the ability to become the object of one’s own attention” (Nagaoka et al., 2014, p. 24). Another component of awareness is metacognition, which is being aware of, or controlling, one’s thinking and understanding. Awareness also includes interpersonal awareness, which can be described as appropriate interactions with others in a variety of settings and accounts for others’ perspectives (e.g., infer others’ beliefs, desires, intentions). Another important aspect is cultural awareness, which is the acknowledgement that other cultures may differ with different expectations and norms.

Finally, temporal awareness is the last form of awareness. Temporal awareness is a skillset that allows one to identify and understand time and distance. Collectively, these three building blocks (i.e., mindsets, knowledge, awareness) are needed for a person to develop their own sense of identity. In addition to these building blocks, there are three processes needed to

help students navigate their respective environments and achieve their unique goals, which are (a) self-regulation; (b) strategy use; and (c) goal-setting (Nagaoka et al., 2014). First, self-regulation includes being able to think about and manage one's behavior. Next, strategy use is necessary to ensure students can self-regulate behavior. Last, goal-setting is setting personal goals. To address these processes, students must persist in the use of behaviors to achieve one's goals. These accompany the framework building blocks to ensure students have the traits and processes needed to successfully access college and careers.

Summary

The UChicago Consortium on School Research has outlined general components of college and career readiness. For example, Vargas (n.d.) highlighted actionable strategies like dual enrollment courses and progression in a program of study. Suggestions from Vargas align with predictors of postschool success, which have been correlated to improved postschool outcomes, including transition program, program of study, student support, and inclusion in general education. These results appear to highlight the overlapping research between college and career readiness and secondary transition, suggesting they serve similar purposes related to strategies educators can use to prepare students with high-incidence disabilities for life after high school. Additionally, many of these strategies overlap with the predictors of postschool success (Mazzotti et al., 2016, 2021; Test et al., 2009). To support implementation of these general components of college and career readiness, it is important to understand how these components are embedded within college and career readiness frameworks.

College and Career Readiness Frameworks

To support students' preparation for college and career readiness, multiple frameworks have been developed for educators to support preparation to ensure students are ready for life

after high school. Conley (2007) presented guidance for the development of the first framework that focuses on preparing students to be college ready. The framework was revised in 2008 to include a broader and more comprehensive approach to college readiness, which included (a) key cognitive strategies, (b) key content knowledge, (c) academic behaviors, and (d) contextual skills and knowledge. Subsequent research related to college and career readiness frameworks have provided specific foci on (a) the College Readiness Indicator Systems (Borsato et al., 2013); (b) students with disabilities (Morningstar et al., 2012, 2017, 2018; Lombardi et al., 2018); and (d) a systematic literature review promoting students with disabilities' representation in college and career readiness frameworks (Monahan et al., 2020).

Conley's College Readiness Frameworks

First, Conley (2007) explained that only 35% of students enrolling in 4-year programs had earned their degree within 4 years, and only 56% had graduated 6 years later. Because of differences between college and high school requirements, disparity between college enrollment and success could be related to the disconnect between high school experiences and college expectations (Conley, 2007). Findings also indicated first-year college students were required to work with peers, during and outside of class times, on projects and address difficult problems, which documents student learning (Conley, 2007). This is starkly different from high school students who were not asked to address these tasks during high school (Conley, 2007). For some students, "learning has been reduced to a form of sleepwalking, requiring no deep mastery or understanding" (Conley, 2007, p. 3). Because of these differences in high school experiences and college expectations, several suggestions were provided to help students be college ready, including four strategies to close the gap between high school experiences and postsecondary education expectations. These suggestions were (a) aligning high school curriculum and

instruction with college expectations, (b) developing high-quality syllabi in all courses, (c) implementing senior seminars, and (d) adding missing content to high school courses. First, high school teachers should ensure curriculum and instruction align with college expectations. One suggestion was to compare and contrast high school course content with college readiness and state standards to ensure cohesiveness and alignment with instruction. Second, high school teachers could ensure syllabi are of high quality for all courses. This would help (a) promote quality instruction; (b) facilitate intra- and inter-departmental collaboration; and (c) reflect high school that aligns with college expectations. Third, high schools may implement senior seminars, which focus on suggestions for college success and incorporate the following: (a) more rigorous pacing than traditional secondary courses; (b) honest feedback on the quality of work to help students prepare for college; and (c) development of student skills (e.g., problem solving, critical reasoning, analytic research). Fourth, high schools should address missing content to help bridge the gap between high school experiences and college expectations. For example, in English Language Arts, teachers could provide instruction on strategic reading, which includes (a) spending additional time to understand main ideas; (b) rereading a text; and (c) using annotation skills (e.g., highlight, underline). These suggestions appear to be among the first to address preparing students to be college ready – one component of college and career readiness. While these suggestions promote college readiness, there is no indication that Conley (2007) made these suggestions with students with disabilities in mind.

To provide additional guidance on college readiness, Conley (2008) provided explicit examples and considerations for ensuring students exited high school prepared to achieve college success. Conley proposed “[c]ollege readiness is a multifaceted concept comprising numerous factors internal and external to the classroom environment,” which include (a) key cognitive

strategies, (b) key content, (c) academic behaviors, and (d) contextual skills and awareness (Conley, 2008, p. 6). For key cognitive strategies, Conley suggested the following skills: (a) problem formulation and problem solving; (b) research; (c) reasoning, argumentation, and proof; (d) interpretation; and (e) precision and accuracy. In addition, suggestions were provided for key content necessary for college readiness. These suggestions included foundational skills needed for English (e.g., reading comprehension, writing, editing, gathering information, analysis, critique); mathematics (i.e., ability to apply conceptual algebraic understandings to identify a problem from context, solve the problem, interpret the answer back into the context from which it was derived); science (e.g., use of scientist communication norms, use of empirical evidence to develop conclusions); social studies (e.g., interpret sources, evaluate evidence, make claims, understand events from a broad perspective); world languages (e.g., understand cultures, use of accurate communication); and the arts (e.g., mastery of physical expression, mastery of oral expression). Conley also highlighted key academic behaviors needed for college readiness. He suggested students need (a) self-management skills (e.g., self-awareness, self-monitoring) to be successful, regardless of content; (b) study skills (e.g., time management, stress management, taking notes, communicating with advisors and mentors); and (c) contextual skills and awareness, which include necessary information for students to apply to college, obtain financial aid, and understanding the college culture and system. While again there is no indication that Conley (2008) made these suggestions with students with disabilities in mind, many of the suggested skills align with the predictors of postschool success (e.g., self-management skills are essential characteristics of self-determination/self-advocacy, providing academic skill instruction is an essential characteristic of inclusion in general education).

College Readiness Indicator Systems (CRIS) Framework

Providing a different perspective on college and career readiness, Borsato et al. (2013) proposed the College Readiness Indicator Systems (CRIS) Framework. CRIS was intended to provide guidance to district administration, community partners, and education professionals on monitoring and providing supports and resources to help ensure students exit high school college and career ready. Built on the concept of schools' pre-existing warning systems, CRIS goes beyond college eligibility and focuses on college readiness. CRIS contains a tri-level approach, which includes the (a) individual (student) level; (b) setting (school) level; and (c) system (district) level (Borsato et al., 2013). Each level serves a unique purpose to support college readiness and guide decision making (Borsato et al., 2013). Last, within the CRIS framework, the responsibility for college readiness goes beyond the school district and allows for community partner engagement to create a citywide network that aligns with student needs. CRIS goes beyond academic preparation and includes "knowledge, skills, attitudes, and behaviors necessary to access college and overcome obstacles on the road to post-secondary success" (Borsato et al. 2013, p. 31). CRIS includes three different dimensions of college readiness, including (a) academic preparedness, (b) academic tenacity, and (c) college knowledge. Using a cycle of inquiry process to combine the indicators with the three dimensions of the CRIS process, educators can (a) identify students who need support and provide support for educators with the support to connect students with appropriate people or services, (b) examine available resources at the setting and system levels, and (c) support leadership with creating effective processes and structures to use the indicators. The framework includes six stages for addressing the cycle of inquiry: (a) taking stock and prioritizing; (b) identifying; (c) planning (d); implementing strategies, policies, and interventions; (e) progressing monitoring and making adjustments; and

(f) analyzing results. Although Borsato et al. made no mention of students with disabilities, the suggestions align well with the predictors of postschool success (e.g., inclusion in general education, interagency collaboration).

College and Career Readiness Frameworks for Students with Disabilities

Unlike the aforementioned college and career readiness frameworks (Borsato et al., 2013; Conley, 2007, 2008), the following frameworks for college and career readiness include specific considerations and suggestions for students with disabilities, including aligning transition and secondary education reforms (Morningstar et al., 2012), providing specific suggestions for students with disabilities and college and career readiness (Lombardi et al., 2018; Morningstar et al., 2017), embedding college and career readiness into multi-tiered systems of supports (Morningstar, Lombardi, et al., 2018), and examining current frameworks to include supports for students with disabilities (Monahan et al., 2020).

First, to promote positive postschool outcomes for students with disabilities, Morningstar et al. (2012) made recommendations for aligning transition with secondary education reforms. It is important to note that Morningstar et al. asserted: “In truth, the seeming divide between transition services in special education and secondary school reform is less dramatic than might be presumed” (p. 137). Morningstar et al. suggested secondary special education professionals and advocates understand and examine secondary reform initiatives to be certain secondary transition policies and practices combine with secondary education reforms and have secondary general education teacher support. This, in turn, will support all students with achieving their personal goals for their futures. To achieve this, actionable steps include ensuring (a) secondary transition personnel systematically and thoughtfully align secondary education reforms (e.g., Response-to-Intervention) with secondary transition policy and practice; (b) transition

professionals work with secondary education to embed transition learning opportunities into the curriculum for all students; and (c) families and teachers work together to promote student voice and choice in the transition process to ensure students are ready for college and careers.

Second, Morningstar et al. (2017) proposed a college and career readiness framework for preparing high school students with disabilities to be ready for life after high school. The authors conducted two, 2-hour focus groups of a purposively sampled selection of state education representatives (i.e., 22 participants) using semi-structured and open-ended questions. Results identified six domains, which included academic and non-academic skills related to college and career readiness. The domains were academic engagement, academic mind-sets, learning processes, critical thinking, social skills, and transition knowledge. Academic engagement consisted of (a) cognitive and content knowledge (e.g., language arts, mathematics); (b) knowledge structures (e.g., organizing concepts, linking ideas); and (c) behaviors (e.g., attendance, productivity). Mind-sets consisted of (a) sense of belonging (e.g., trusting relationships, extracurricular engagement); (b) growth mind-set (e.g., learning from mistakes/progress); (c) ownership of learning (e.g., seeking help, setting goals); (d) perseverance (e.g., motivation, grit). Learning processes consisted of accessing content (e.g., test-taking skills, note-taking skills) and engaging in learning (e.g., group/team engagement, listening skills). Critical thinking consisted of (a) problem solving (e.g., recognizing a problem, hypothesizing); (b) research (e.g., identifying solutions); (c) interpretation (i.e., analyzing, synthesizing); (d) communication (i.e., creating products, presenting products); and (e) precision/accuracy (e.g., monitoring progress, confirming results). Within interpersonal engagement, there were three categories, including interpersonal engagement (a) with self (i.e., responsibility, adaptability); (b) with others (e.g., assertion, leadership); (c) and understanding others (e.g., social awareness,

empathy). Under the transition competencies domain, the following categories were identified: early planning (e.g., interest-aligned goals, financial planning); career culture (e.g., professionalism, employer expectations); college culture (e.g., campus resources, faculty expectations); and adult roles/responsibilities (e.g., financial literacy, health and wellness). By addressing Morningstar et al.'s suggestions, practitioners can help prepare students with high-incidence disabilities to be college and career ready. Morningstar et al.'s suggestions align with multiple predictors of postschool success (e.g., goal-setting, self-advocacy/self-determination, social skills, student support). These results highlight how practitioners may implement the predictors of postschool success to prepare students with high-incidence disabilities to be ready for college and careers.

Third, Morningstar, Lombardi, et al. (2018) offered guidance on how college and career readiness could be included in a secondary multi-tiered system of supports (MTSS) approach, along with providing recommendations for aligning college and career readiness with data-based decision making emphasizing procedural fidelity. To address this, Morningstar, Lombardi, et al. suggested ensuring implementation fidelity, a critical component, to ensure components of the framework are implemented with accuracy and consistency of student preparation for college and careers. To assess implementation fidelity, Morningstar, Lombardi, et al. suggested using the Schoolwide Positive Behavior Intervention and Supports (SWPBIS) Tiered Fidelity Inventory (TFI) but noted the TFI does not include college and career readiness. Therefore, two additional tools were suggested to provide guidance on college and career readiness assessment, including the Predictor Implementation School/District Self-Assessment (PISA) and (b) the Quality Indicators of Exemplary Transition Programs-2 (QI-2). Although these assessments address college and career readiness, the PISA and QI-2 do not examine MTSS. Although none of the

assessments are perfect for implementing college and career readiness within an MTSS framework, these assessments could be used as a suggestion for developing a measure that encompasses both MTSS implementation fidelity and college and career readiness components. The PISA reflects the predictors of postschool success and allows schools and districts to self-assess quality of implementation fidelity based on the predictors.

Fourth, Lombardi et al. (2018) used latent variable modeling to examine Morningstar et al.'s (2017) suggested college and career readiness framework with six domains to compare college and career readiness for adolescents with and without disabilities. Lombardi et al. examined levels of adolescents' college and career readiness. Results supported four of the six domains (i.e., academic engagement, critical learning processes, mind-set, and transition knowledge). When examining for latent mean differences between adolescents with disabilities and adolescents without disabilities, one factor (i.e., transition knowledge) indicated differences between growth, suggesting students without disabilities had higher levels of college and career readiness. Lombardi et al. suggested that future school-wide reforms, focused on college and career readiness nonacademic skills, should include students with disabilities. Furthermore, Lombardi et al. suggested examining the alignment between secondary special education and transition with college and career readiness.

Finally, to examine if college and career readiness frameworks supported students with disabilities, Monahan et al. (2020) systematically examined the scholarly literature. Twenty-six articles were included within the review. Results indicated complex academic and functional skills; however, little evidence was found documenting students with disabilities being supported within these frameworks. In addition, external factors were highlighted as potentially affecting student college and career readiness (e.g., college culture awareness, financial confidence).

When considering how to prepare students to be ready for college and careers, practitioners may consider Monahan et al.'s findings and include the promotion of (a) cultural awareness, (b) financial independence, (c) academic skill development, (d) and nonacademic skill development. Monahan et al. noted the need to refine college and career readiness, with a specific emphasis on preparing students to be ready for careers.

Summary

Although college and career readiness frameworks have been developed for all students (Borsato et al., 2013; Conley 2007, 2008), there appears to be a need to further examine and refine student preparation for college and careers (Monahan et al., 2020). This further highlights the necessity of preparing students with disabilities to be college and career ready (Lombardi et al., 2018; Morningstar et al., 2012, 2017; Morningstar, Lombardi, et al., 2018) and specifically examining how to operationalize college and career readiness for students with disabilities within college and career readiness frameworks (Morningstar et al., 2017). Lombardi et al. (2018) suggested finding alignment between secondary special and transition services with college and career readiness initiatives. Based on poor postschool outcomes focused on college and careers (e.g., lower rates of employment, lower rates of postsecondary education enrollment and completion [Newman et al., 2011]) and the predictors of postschool success, the predictors could be a logical option for linking the efforts between secondary education, secondary transition, and college and career readiness to prepare all students, including students with high-incidence disabilities.

Implementation of College and Career Readiness

In addition to aforementioned suggestions and frameworks, it is important to identify specific practices that have been found effective to promote student college and career readiness.

This section contains research studies focused on college and career readiness for all students (i.e., Falco & Steen, 2018; Schultz & Stern, 2013) and studies that disaggregate data for students with disabilities (i.e., Gottfried et al., 2016; Milson & Dietz, 2009; Lombardi et al., 2011, 2012, 2015, 2017) to prepare students to be ready for college and careers.

First, to operationalize college and career readiness for students with learning disabilities, Milson and Dietz (2009) conducted a Delphi study. Using purposive sampling, Milson and Dietz identified 29 professionals with backgrounds in special education, secondary transition, higher education, and/or counseling with whom to conduct the study. Professionals were identified based on their publication record, work on national organizations related to secondary transition (e.g., Council for Exceptional Children's Division on Career Development and Transition), or their work in secondary or postsecondary education settings supporting students with learning disabilities. Results indicated 62 factors as indicators of college readiness factors for students with learning disabilities. Broad categories of factors included academic skills (e.g., basic mathematics, writing); broad study skills (e.g., time management, problem-solving); autonomous functioning skills (e.g., self-determination); interpersonal skills (e.g., social, self-advocacy); knowledge of self (e.g., self-awareness); and knowledge of college (e.g., differences between high school and college). These align with the predictors of postschool success, including self-determination/self-advocacy, transition program, and youth autonomy/decision-making (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009). These results appear to highlight overlapping research focused on preparing students for adult life (i.e., college and career readiness, transition to adult life) and the need for collaborative efforts amongst college and career readiness efforts, secondary transition, and secondary education (Lombardi et al., 2018).

To examine the College & Career Ready School Diagnostic (CCRS)D psychometric properties for academic behaviors that were related to secondary students' college and career readiness, Lombardi et al. (2011) conducted an exploratory factor analysis from a random sample from 413 students in grades 9, 10, 11, and 12 from 10 schools from California, Colorado, Connecticut, and Oregon that participated in the CCRSD pilot test. The CCRSD consists of 37 items that were rated on a 4-point Likert-type scale (i.e., from 1 [not at all important] to 4 [very important]). Results indicated four reliable factors: (a) seven variables identified for goal-driven behaviors (e.g., setting and accomplishing goals); (b) seven variables for persistence (e.g., requesting help, time-management skills); (c) six variables for study skills (e.g., peer group work); and (d) five variables for self-monitoring (e.g., self-awareness of strategies and resources for improvement). Lombardi et al. tested the four-factor model to determine if these results could be replicated using the remaining 610 responses to the pilot study using a confirmatory factor analysis with maximum likelihood estimation. Using the four-factor solution, academic behaviors had large correlation coefficients with four latent factors: goal-driven behaviors (i.e., .87); persistence (i.e., .93); self-monitoring (i.e., .93); and study skills (i.e., .96). Latent variables ranged from .48 to .80, suggesting a strong local fit. For global fit, the root mean square error of approximation (RMSEA, <.08), the standardized root mean square residual (SRMR < .08), and comparative fit index (CFI, > .90) suggested a strong global fit as well. Finally, using data from both the exploratory factor analysis and confirmatory factor analysis, Lombardi et al. ran multiple analysis of variance (MANOVAs) by grade level, using race, gender, and first generation status to predict the four outcome variables. For ninth graders, using multivariate analyses, statistically significant differences were found based on Hispanic/Latino (Wilks' $\Delta = .956$, $F[4, 268] = 3.05$, $p < .025$, $\eta p^2 = .04$) status and gender (Wilks' $\Delta = .952$, $F[4, 268] = 3.38$, p

<.025, $\eta p^2 = .05$). Results suggested goal driven behaviors, persistence variables, study skills variables, and self-monitoring are important factors for preparing students to be ready for college and careers.

Conducting an exploratory factor analysis, Lombardi et al. (2012) examined the CollegeCareerReady School Diagnostic measure of critical skills needed by high school students to be college and career ready. Then, Lombardi et al. conducted a confirmatory factor analysis to validate the framework (CFA). Results indicated the five-factor solution aligned with previous validation measures and included (a) problem formulation, (b) research, (c) interpretation, (d) communication, and (e) precision/accuracy. Given these results, students with high-incidence disabilities should develop these skills prior to exiting high school to be prepared with the skills needed to be college and career ready.

Next, Lombardi et al. (2015) examined 857 secondary students with and without disabilities' critical thinking skills from one urban high school. Five outcome variables (i.e., problem formulation, research, interpretation, communication, precision/accuracy) were measured by CampusReady to assess critical thinking and other non-academic college and career readiness factors. Participants rated responses on a 5-point Likert-type scale (i.e., 1 [not at all like me] to 5 [very much like me]). In addition, student Preliminary Scholastic Aptitude Test (PSAT) scores in mathematics, critical reading, and writing; grade point average; demographic data (i.e., gender, race, ethnicity, disability status, disability category, English Learner status, free/reduced-price lunch status) were collected. Results indicated students without disabilities had statically significant higher scores on each of the five critical thinking variables, compared to peers with disabilities. Larger differences existed between ratings of students with and without disabilities in 9th and 12th grades than for students in 10th and 11th grades. Results further

indicated 34% of variance in GPA was accounted for ($F [13, 857] = 28.98, p < .001$). An additional 3% was accounted for because of the five critical thinking scores, and IEP status contributed for an additional one percent of variance accounted for within the model. Results highlight the need to address problem formulation, research, interpretation, communication, and precision/accuracy skills to ensure students have skills necessary to be ready for college and careers.

To understand if applied STEM course taking and school-based experiential programs predicted students with and without disabilities' declaration of enrollment in STEM college majors, Gottfried et al. (2016) used the 1997 National Longitudinal Survey of Youth (NLSY97), a nationally representative data sample of approximately 9,000 students between the ages of 12 and 16. The primary outcome variables were (a) did not enroll in college, (b) enrolled in college in a major other than Science Technology Engineering Mathematics (STEM), or (c) enrolled in college as a STEM major for students with and without disabilities. Predictor variables included enrolling in a STEM field. Specifically, the following variables were examined: (a) STEM courses (i.e., applied mathematics/science, applied STEM) and (b) participation in school-based employment programs. Control variables were (a) gender, (b) race/ethnicity, (c) parental income, (d) parent education, (e) armed service vocational aptitude battery (ASVAB) score, and (f) disability type. First, a two-tailed t test examined if students with and without disabilities had statistically different high school career technical education experiences. Multinomial logistic regression was conducted to predict the odds of declaring a STEM or a non-STEM major. Results indicated no statistical differences between the enrollment of STEM majors between students with and without disabilities. Students with disabilities took less advanced mathematics classes and fewer STEM courses by the end of high school, but there were no statistical

differences between students with and without disabilities participating in school-based employment programs. For predicting if students enroll in a STEM major in college, the only variable with statistically significant results was for students who took lower-level science coursework; those students were 72% less likely to select a college major in the STEM field. These results appear to highlight the importance of high expectations for students with high-incidence disabilities and ensuring they are participating in inclusion in general education, which is also a predictor of postschool success.

Using a quasi-experimental group design and hierarchical regression to examine the effects of the EnvisionIT curriculum, Lombardi et al. (2017) compared the results of 108 10th through 12th grade students from six high schools in two states. Students in the intervention group were enrolled in inclusive courses and non-inclusive career or vocational elective courses, who received the EnvisionIT curriculum. Students in the comparison group received the business-as-usual transition services without implementation of the EnvisionIT curriculum. The EnvisionIT curriculum is a 12-unit curriculum intended to promote transition planning, including postsecondary goals. EnvisionIT contains a variety of topics (i.e., career readiness, career exploration, information technology [IT] literacy, reading, financial literacy) and is intended to be delivered over the course of an academic year through an online system. After completion of the EnvisionIT curriculum, students develop a transition portfolio containing multiple items (e.g., resume, cover letter) culminating in participation. Using the *Envision Information Technology Literacy* scale consisting of 20 multiple choice items, Lombardi et al. used a pre- and post-survey design to assess the effectiveness of the intervention. In addition, the EnvisionIT Student Satisfaction Survey was developed and contained 19 items on a 4-point, Likert-type scale (ranging from 1 [none] to 4 [a lot]) for students to self-rate their skills pre- and post-

intervention of (a) using the internet; (b) reading, test-taking, and writing strategies; (c) careers of interest; (d) postsecondary education and training options; (e) setting goals and making plans; and (f) preparing for a job. Results indicated the intervention accounted for 38.3% of the variance for the IT Literacy scores ($R^2 = 0.383$, $F[7, 101] = 4.91$, $p < 0.001$). Student self-reported scores pre- and post-intervention across all of the EnvisionIT content areas which indicated increases in scores ranging from 9% to 31%. Lombardi et al. (2017) suggested utilizing transition curricula into multiple courses, including in general education courses, because of the flexibility of implementation, specific skills focused on career readiness, and it is beneficial for all students with or without disabilities. Practitioners may consider using EnvisionIT to prepare students for adult life by learning to develop career awareness and set goals, which align with predictors of postschool success (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009).

Using an integrative review of the literature, Falco and Steen (2018) examined 117 publications from 1961 to 2017 to identify, summarize, and evaluate career development activities shown to be effective for supporting student college and career readiness. Results indicated four themes: (a) experiential activities (i.e., work-based interventions, service-learning/volunteer programs, job shadow, internship, work study, vocational education/CTE programs, mentoring programs); (b) individual activities (i.e., individual assessment and/or advising, academic and/or 4-year planning, career assessments, college admissions testing, portfolio/education career action plan); (c) classroom activities (i.e., guidance lessons or group activities, career day/career fair, career or college field trips, community member presentations in the classroom, career guidance lessons, technology/computer-assisted guidance); and (d) curriculum activities (i.e., curriculum-based interventions, career courses, career academy/career magnet school, career information or exploration infused into core academic curriculum, dual

enrollment, informational interviewing, resume writing). Because the literature highlights the effectiveness of these activities, educators should consider engaging in these college and career readiness activities (i.e., experiential, individual, classroom, curriculum) to prepare students with high-incidence disabilities to be college and career ready.

Summary

Understanding components found to support college and career readiness for students with disabilities is critical; however, the components associated with increased college and career readiness may not be something a practitioner can affect (e.g., gender, racial/ethnic background, disability status; Lombardi et al., 2018). These highlighted correlational factors are important to understand whether or not a student is more or less likely to experience college and career readiness. Nonetheless, these factors cannot be controlled by education professionals. With that consideration, educators have actionable steps they can take to prepare students for adult life, including, but not limited to, self-management skills (Milson & Dietz, 2009); self-awareness (Lombardi et al., 2011); problem solving (Milson & Dietz, 2009); career awareness (Falco & Steen, 2018; Gottfried et al., 2016), communication skills (Lombardi et al., 2012, 2015); use of the WorkKeys assessment (Schultz & Stern, 2013); EnvisionIT (Lombardi et al., 2017); and cognitive and content knowledge, career culture, and engagement (Lombardi et al., 2017). Practitioners should implement these practices to ensure students are prepared for college and careers. The predictors of postschool success again appear to be a viable option to prepare students to be ready for college and careers. Career awareness, goal-setting, inclusion in general education, self-advocacy/self-determination, and youth autonomy/decision-making are correlated with improved postschool outcomes and align with the literature on college and career readiness.

Perhaps, the predictors of postschool success are viable for bridging college and career readiness and secondary transition efforts.

Summary

Within this strand, multiple examples of college and career readiness for all students, including for students with high-incidence disabilities, have been highlighted through general considerations, frameworks, and specific practices. Specific practices and frameworks have highlighted the need to implement strategies to help students develop self-determination skills (e.g., Milson & Dietz, 2009), knowledge about careers (e.g., Falco & Steen, 2018; Gottfried et al., 2016), and communication skills (e.g., Lombardi et al., 2012). Interestingly, these concepts, along with others appear to align nicely with the predictors of postschool success. For example, knowledge about careers can align with career awareness, paid employment/work experiences, and career technical education. Self-determination is comprised of skills and components, of which self-advocacy/self-determination are part (Wehmeyer et al., 1997). Additionally, communication skills may align with social skills. The secondary transition literature includes research- and evidence-based predictors that have been correlated with improved postschool outcomes for students with disabilities (Mazzotti et al., 2016; 2021; Rowe et al., 2015; Test et al., 2009). Considering this alignment between the predictors of postschool success and the literature for college and career readiness, perhaps the secondary transition predictors of postschool success may fill the gap necessary to prepare students with high-incidence disabilities to be ready for college and careers. By implementing the predictors of postschool success in inclusive settings, all students, including students with high-incidence disabilities, will more likely experience improved postschool success.

Supporting Students with High-Incidence Disabilities in General Education Settings

This strand focuses on evidence to support youth with high-incidence disabilities in inclusive settings (i.e., general education). Specifically, this strand includes the rationale for general education involvement in the preparation of students with high-incidence disabilities for college and careers, training and professional development for special education teachers, and literature supporting use of the predictors of postschool success. Because general education teachers were first mandated to participate as a member of students with disabilities' individualized education program (IEP) teams, general education teacher involvement in preparing students with disabilities for adult life is often attributed to the Individuals with Disabilities Education Act (1997). Rowe et al. (2015) defined inclusion in general education as “hav[ing] access to general education curriculum and be[ing] engaged in regular education classes with peers without disabilities” (p. 120). According to the U.S. Department of Education's 41st Annual Report to Congress from 2008 to 2017, the percentages of students with disabilities included in general education for 80% or more of the school day increased from 58.5% to 63.5%. Students with high-incidence disabilities were most often represented as receiving 80% or more instruction in general education settings (e.g., speech or language impairment [87.2%], specific learning disabilities [71.6%], other health impairments [66.7%]). Additionally, the National Center for Education Statistics (NCES; 2019) noted 62.5% of students with disabilities spent more than 80% of their educational day in general education settings, and 18.7% of all students with disabilities spent between 40% to 79% of their day in general education classes. At least 81.2% of students with disabilities spent at least part of their educational day learning in general education settings (NCES, 2019). To ensure students are successful within inclusive settings, general education teachers are legally required to provide

accommodations and modifications to students with disabilities in inclusive settings, so these students have the opportunity to learn in the same environment as their peers without disabilities (IDEA, 2004). Given these mandates and the amount of time students with high-incidence disabilities spend in general education classrooms, the necessity of general education involvement in preparing students to be ready for college and careers cannot be overstated. It is important to further examine the role of general education teachers in preparing students with high-incidence disabilities to be college and career ready.

Rationale for General Education Involvement

In 1990, the Individuals with Disabilities Education Act (IDEA) was the first federal legislation to require students with disabilities be prepared for postsecondary education, vocational training, integrated employment (including supported employment), continuing adult education, adult services, independent living, or community participation. In 1997, IDEA was amended to improve support for students with disabilities as they prepare for life after high school by including general education teachers as individualized education program (IEP) team members. Additionally, the reauthorization of IDEA (2004) requires the provision of access to the general curriculum for students with disabilities. More specifically, IDEA (2004) mandates that “to the maximum extent appropriate children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are nondisabled” [20 U.S.C. 1412(1)(5)], which further justifies the important roles general education teachers have in supporting students with disabilities for adult life.

In addition to legislative mandates, inclusion in general education for students with disabilities has been correlated with improved postschool outcomes across education/training, employment, and independent living, further signifying the importance of including general

education teachers in transition planning to ensure students with disabilities have the necessary supports to be college and career ready (Test et al., 2009). Test et al. (2009) found a large median effect size (i.e., 0.53) for the education/training outcomes and reported a moderate level of evidence supporting inclusion in general education as a predictor of postschool success for education and employment outcomes. These results highlight the importance of students learning from general education teachers. When students spend time learning in general education classrooms, they are more likely to experience postschool success in both employment and education outcome areas (Mazzotti et al., 2016, 2021; Test et al., 2009). Inclusion in general education appears to be a logical approach to promote positive postschool outcomes for students with high-incidence disabilities.

Training and Professional Development for Special Education Teachers

It is important to understand what type of transition professional development has been provided to general education teachers. To address transition personnel professional development, understanding how special education teachers have received in-service training is necessary. General considerations (Holzberg et al., 2018); face-to-face training (Flannery et al., 2015); online training (Kim & Morningstar, 2007); components of pre-service and in-service transition training (Morningstar, Hirano, et al., 2018); in-service preparation to implement transition practices (Williams-Diehm et al., 2018); and impacts of transition training on implementation of transition practices (Morningstar & Benitez, 2013) have been highlighted within the secondary transition professional development literature. These suggestions, although mostly focused on special education teachers, can be used to provide secondary transition and/or college and career readiness professional development to general education teachers to prepare students to be ready for college and careers.

As noted by Holzberg et al. (2018), professional development is one way to help improve the quality of transition services. Holzberg et al. suggested transition professional development should include four concepts: (a) focusing on content relevant to educator knowledge and beliefs, (b) learning in an active way, (c) sustaining planning and implementation, and (d) participating with a team. These trainings could be conducted via face-to-face sessions, webinars, or online training modules (Holzberg et al., 2018). When designing professional development, it is critical to include these four concepts to ensure educators gain knowledge and develop skills to promote positive postschool outcomes (Holzberg et al., 2018).

Flannery et al. (2015) provided a 2-day face-to-face professional development to 27 special education teachers who worked with transition-aged students with disabilities. The 2-day training consisted of six 90-min professional learning community sessions to teach participants about writing transition components of the IEP. The professional learning community sessions included four main features: (a) participating in practice within the school environment, (b) asking follow-up questions, (c) having supportive and meaningful conversations with colleagues, and (d) receiving feedback. To evaluate the effectiveness of the professional development, Flannery et al. examined the pre-post impact on quality of the written components of IEPs. Results indicated an increase in the number and quality of components for the transition component of the IEP. Professional development to support IEP teams should focus on strategic planning to help students make gains from their present levels of performance to achieving their postschool goals.

Along with face-to-face professional development, trainings also can be delivered to educators via online formats (e.g., webinars; Holzberg et al., 2018). Kim and Morningstar (2007) examined the effects of online computer training on special education teachers' knowledge,

competency, and attitudes of working with families from culturally and linguistically diverse backgrounds during the transition process. The Secondary Transition and Cultural Diversity module was used, which included three sections: (a) how culture influences systems and people, (b) how culture interacts with transition services, and (c) how disability can be perceived differently through various cultural perspectives. Each section consisted of six to eight webpages of information and interactive features. The entirety of the training took between 3 to 5 hours to complete. Knowledge was measured online with a 12-item (10 multiple choice, two matching response) assessment. Changes in attitude was assessed using the *Working with Culturally and Linguistically Diverse Families Survey*, which included 14 items related to how prepared respondents rated level of importance on 14 competencies on a 4-point Likert-type scale. To compare the effects of the intervention, 85 secondary special education teachers were randomly assigned to either the experimental ($n = 43$) or control group ($n = 45$). Results indicated online training is an effective method for providing transition intervention, which resulted in statistically significant increases in special education teachers' transition knowledge and competency. Kim and Morningstar suggested professional development strategies match teachers' specific needs. If a teacher needs to develop knowledge or specific strategies, a professional development could include basic information or specific strategies.

To understand educator preparation programs for secondary general and special educators, Morningstar, Hirano, et al. (2018) examined the impact of secondary educator preparation on students' transition outcomes via a nationally distributed survey. A variety of undergraduate and graduate program stakeholders responded, including special and general education faculty and general and special education department chairs. Results indicated their programs reportedly prepared program graduates to address learner development and individual

learner differences, instructional planning and strategies, learning environments, curricular content knowledge, assessment, professional learning and ethical practice, and collaboration (respectively ranging from 3.99 to 3.22 on a 5-point Likert-type scale). Further, results indicated the most often instruction transition-related related to family involvement during transition planning (89%) and self-advocacy and self-determination (88%); however, instruction in leadership and advocacy and embedding transition practices within general education (64%) were lower. Results further validated previous research that secondary special educators receive limited access to evidence-based practices. Along with learning about evidence-based practices, Morningstar, Hirano, et al. suggested future college and career ready efforts focus on utilization of predictors of postschool success to make it more likely to increase positive postschool outcomes for students with disabilities. Missing from the data were data patterns for how respondents delivered content, but data indicated transition content was infused throughout the curriculum or in one course.

To understand how licensure programs address transition-related knowledge and skills for special education teachers to design and deliver transition-related instruction, Williams-Diehm et al. (2018) examined a sample of 24 syllabi from 22 universities from 2015 U.S. News & World Report rankings and the 2014 National Council on Teacher Quality rankings. Results indicated 83% ($n = 20$) of course syllabi addressed IEP development and planning strategies, and 38% ($n = 9$) addressed student participation within the student-focused planning. Within student development, course syllabi learning outcomes addressed life, social, and emotional skills ($n = 23$, 96%); academic skills ($n = 20$, 83%); and employment and occupational skills ($n = 15$, 63%). Within the family engagement domain, course syllabi learning outcomes addressed family involvement ($n = 10$, 79%), family empowerment ($n = 13$, 13%), and family preparation was not

addressed. In interagency collaboration, course syllabi learning outcomes addressed interagency collaboration ($n = 19$, 79%) and collaborative frameworks ($n = 3$, 13%). In program structures, course syllabi learning outcomes addressed program characteristics ($n = 11$, 46%); program evaluation ($n = 8$, 33%); policies and procedures ($n = 7$, 29%); and strategic planning ($n = 3$, 13%). As noted by Williams-Diehm et al., preservice special education teachers are not receiving instruction to effectively prepare students with disabilities for adult life.

To understand secondary special education teacher experiences with transition professional development, Morningstar and Benitez (2013) conducted a national survey of 557 secondary educators with professional development experiences and 46 transition competencies to examine transition professional development experiences to predict the variables that would relate to increased special educator use of transition planning and service activities. Participants rated their preparedness and frequency of 46 competencies that aligned with six transition domains on a 5-point Likert-type scale. The domains were transition planning, curriculum and instruction, instructional planning, assessment, collaboration, and additional competencies. Results indicated a statistically significant correlation between number of staff development hours and number of transition courses with frequency of implementation. As Morningstar and Benitez (2013) noted “training matters when it comes to implementing transition practices” (p. 58). This training matters for all educators, including general education teachers to ensure all students, including students with high incidence disabilities, are college and career ready.

Summary

As noted by Morningstar and Benitez (2013), transition training practices include a variety of special education transition professional development. This includes general training (Holzberg et al., 2018); face-to-face training (Flannery et al., 2015); online training (Kim &

Morningstar, 2007); components of pre-service and in-service transition training (Morningstar, Hirano, et al., 2018); in-service preparation to implement transition practices (Williams-Diehm et al., 2018); and impacts of transition training on implementation of transition practices (Morningstar & Benitez, 2013). Missing from the literature, however, is how to train general education teachers with preparing students to be ready for college and careers. The predictors of postschool success seem ideal to train general education teachers about preparing students to be ready for college and careers (Mazzotti et al., 2016; 2021; Rowe et al., 2015; Test et al., 2009).

Literature Supporting Use of Predictors of Postschool Success

Although evidence-based practices have an important role in preparing students for adult life, there are considerations for their use and implementation (e.g., implementation fidelity, confidence with implementation). In addition to evidence-based practices, the predictors of postschool success (Mazzotti et al., 2016; 2021; Rowe et al., 2015; Test et al., 2009) have evidence to support their use and should be considered to support students with high incidence disabilities in becoming college and career ready. Special education teachers and transition practitioners reported receiving only some training on evidence-based practices (Mazzotti & Plotner, 2016). Furthermore, special education teachers and transition practitioners often struggle implementing these practices, especially when considering implementation fidelity (Mazzotti & Plotner, 2016). If special education teachers with some training on evidence-based, research-based, and promising practices have difficulty implementing these practices with fidelity, it could be reasonably assumed that general education teachers without training may experience greater difficulty implementing these practices with high fidelity. This highlights the rationale for using the predictors of postschool success to prepare students with high-incidence disabilities for life after high school (Mazzotti et al., 2016; Mazzotti et al., 2021; Test et al., 2009).

Considering the predictors of postschool success are supported by research, students with high-incidence disabilities, who have access to the predictors in school, will be more likely be ready for both college and careers. Because the predictors of postschool success (Mazzotti et al., 2016, 2021; Test et al., 2009) have operational definitions and essential characteristics (Rowe et al., 2015), the predictors could be easy strategies for general and special educators to prepare all students to be college and career ready. Therefore, it is important to examine the use of predictors of postschool success and how they may be used to support general and special education teachers within their classrooms to prepare students for adult life.

Predictors of Postschool Success

The predictors of postschool success have been identified through rigorous, high quality correlational research (Thompson et al., 2005). The predictors of postschool success are activities and experiences that relate to improved postschool outcomes for students with disabilities. Originally published in 2009, Test et al. conducted a systematic review of secondary transition correlation literature from 1984 through March 2009 and identified 162 articles to examine and identify in-school predictors correlated with improved postschool outcomes (i.e., education/training, employment, independent living) for students with disabilities. Of the 162 articles identified, 28 met inclusion criteria for examination of quality indicators. From those 28 studies, Test et al. identified 16 promising and research-based predictors of postschool success for transition-aged students with disabilities across three outcome areas ($n = 4$, 25%); education/training and employment ($n = 7$, 43.8%); and independent living ($n = 5$, 31.3%). The researchers identified 16 predictors of postschool success: (a) career awareness (education, employment); (b) community experiences (employment); (c) exit exam requirements/high school diploma status (employment); (d) inclusion in general education (education, employment,

independent living); (e) interagency collaboration (education, employment); (f) occupational courses (education); (g) paid employment/work experience (education, employment, independent living); (h) parental involvement (employment); (i) program of study (employment); (j) self-advocacy/self-determination (education, employment); (k) self-care/independent living (education, employment, independent living); (l) social skills (education, employment); (m) student support (education, employment, independent living); (n) transition program (education, employment); (o) vocational education (education, employment); and (p) work study (employment).

To operationally defined the predictors for practitioners, Rowe et al. (2015) operationally defined and developed essential characteristics. The essential characteristics are actionable steps that can be taken to implement the predictors of postschool success. To develop these definitions and essential characteristics, Rowe et al. conducted a Delphi study. Rowe et al. collected data in three steps, which focused on (a) clarifying initial definitions, (b) gaining expert input to vote on definitions, and (c) reviewing final drafts of definitions and essential characteristics to ensure students represented culturally and linguistically diverse backgrounds were represented. For the original predictors identified by Test et al. (2009), Rowe et al. developed operational definitions and characteristics to help districts develop, implement, and evaluate transition programs. Although the literature appears to lack implementation of the predictors at the school and classroom levels, these results appear to provide actionable steps general and special education teachers can take to prepare all students, including students with high-incidence disabilities, for life after high school.

To examine the strength of each of the 16 predictors identified by Test et al. (2009), Haber et al. (2016) conducted a meta-analysis. Haber et al. reviewed each of the studies used to

identify the predictors in the Test et al. article and included research through May of 2010. To provide additional evidence to the Test et al. review, Haber et al. conducted a meta-analysis to determine reliable and precise estimates of effect sizes. Haber et al. examined if associations of predictors had different outcomes from one another in relation to postschool outcomes. After examining for inclusion criteria, 35 sources were identified, which included 27 samples from Test et al., and 14 of which were unique to this review. For both postsecondary education and employment outcomes, results included statistically significant results for career technical education, inclusion in general education, interagency collaboration, paid-employment/work experience, and self-determination.

Next, Mazzotti et al. (2016) conducted a literature review of the secondary analysis studies of the NLTS-2 to identify additional predictors of postschool success. Mazzotti et al. reviewed 14 articles for quality, using the same quality indicator checklist used by Test et al. (2009), which resulted in 11 articles being included. Mazzotti et al. aligned results from their review with Test et al.'s review, adding additional evidence to pre-existing predictors of postschool success (i.e., career awareness, exit exam requirements/high school diploma status, inclusion in general education, paid employment/work experience, parental involvement, self-determination/self-advocacy, self-care/independent living skills, social skills, vocational education, work study). Results from Mazzotti et al. included four new predictors of postschool: (a) parent expectations (education, employment, independent living); (b) goal setting (education, employment); (c) youth autonomy/decision-making (education, employment); and (d) travel skills (employment).

To update the literature base even further, Mazzotti et al. (2021) examined secondary transition correlational literature for transition-aged with disabilities from 2009 until 2019 to

identify additional predictors of postschool success. This was done to examine all secondary transition correlational research since Test et al.'s publication, excluding secondary analyses of NLTS-2. Results indicated evidence for 14 predictors of postschool success (Mazzotti et al., 2016; Test et al., 2009), which were (a) career technical education (previously vocational education), (b) exit exam/high school diploma status, (c) goal-setting, (d) inclusion in general education, (e) paid employment/work experience, (f) parent expectations, (g) program of study, (h) self-care/independent living skills, (i) self-determination/self-advocacy, (j) social skills, (k) student support, (l) transition program, (m) work study, and (n) youth autonomy/decision-making. For this review, career technical education was identified, with enough evidence, to be the first evidence-based predictor of postschool success. In addition, three new predictors were identified, including (a) psychological empowerment (education, employment, independent living), (b) self-realization (employment, independent living), and (c) technology skills (employment).

In addition, the predictors have been suggested for use in transition program planning, implementation, and evaluation (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009). For example, the predictors of postschool success can be used in program evaluation to determine if high-quality transition programming is occurring within a school or district that correlates to improved postschool outcomes (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009). Further, the predictors could be used to provide policy guidance and help implement practices and procedures that are correlated with improved postschool outcomes (Mazzotti et al., 2021). Clearly, the predictors literature has potential for practitioner use to develop and improve programs, policies, and procedures to make it more likely that students with disabilities experience improved postschool outcomes (Mazzotti et al., 2016; Mazzotti et al.,

2021; Rowe et al., 2015; Test et al., 2009). However, research is limited on how the predictors could be used in experimental investigations. Because the predictors of postschool success have been correlated with improved postschool outcomes, the predictors appear to be an ideal option to teach general educators about preparing students for adult life. With the related essential characteristics (Rowe et al., 2015), the actionable steps could be an ideal strategy for designing experimental research to teach practitioners, including general education teachers, about effective transition practices to prepare students for adult life.

Involvement of General Education Teachers

Based on legal requirements, general education teachers are required to prepare students with disabilities for life after high school. Beyond legal requirements, general education teachers have reported wanting additional involvement within the transition planning process (Kwiatek, 2017; Wolfe et al., 1998). For example, Wolfe et al. (1998) surveyed 39 general education teachers in Pennsylvania about perceptions on the importance of 30 transition-related teacher competencies from seven domains (i.e., employment/vocational, communication, student interpersonal skills, professional, community, residential/daily living, leisure/recreational) using the Transition/Inclusion Planning Protocol. Researchers compared results to previous findings from special educators who completed the Transition/Inclusion Planning Protocol. Questions included (a) demographic data, (b) 30 key transition-related competencies, and (c) preparation to work with students with disabilities. Results indicated 59% of respondents provided students with disabilities with specific content instruction. Eight percent of respondents reported having a primary responsibility for transition-related activities. Respondents reported not receiving training on multiple transition competencies. Wolfe et al. suggested providing transition training to general education teachers to help them support students' transition to life after high school.

In addition, Kwiatek (2017) used a semi-structured interview protocol to interview six secondary general educators about the transition process for students with and without disabilities. Interviews were recorded and transcribed. Transcripts were coded using open, selective, and axial coding to identify themes, which were confirmed by participants during a member check. Results indicated participants reported wanting additional knowledge on the (a) rationales for IEP decisions, (b) students' postsecondary goals, and (c) effective ways of supporting students as they transition to adulthood. These general education teacher participants have documented wanting additional knowledge and skills to prepare students for adult life, highlighting the need for secondary transition professional development.

Considering general education teachers have reported wanting more involvement in transition (Kwiatek, 2017), and special education teachers have reported needing support with providing transition services for students with disabilities (Morningstar & Benitez, 2013), partnering with general education to prepare students for adult life is a logical option. Given the utility of the predictors of postschool success (Mazzotti et al., 2016, 2021; Rowe et al., 2015, Test et al., 2009), the predictors of postschool success appear to be an ideal way to engage general education teachers with disabilities with supporting students with disabilities' transition to adult life. To understand the importance, relevance, and self-perceived ability to implement the predictors of postschool success from general and special education teachers, Kwiatek et al. (2021) conducted an exploratory mixed method study with two phases of focus groups and a survey. Researchers interviewed five special education teachers and five general education teachers from a large rural school district (i.e., over 15,000 students) from the southeast United States. Participants were asked to identify their top three predictors of postschool success that were most relevant (i.e., how the listed predictor of postschool success directly relates to the

respondents' content and instruction as part of educational planning); important (i.e., how critical the listed predictor of postschool success is for students to understand and experience); and perceived ability to implement (i.e., knowing how to implement the listed predictor of postschool success within the respondent's content and instruction).

The top three predictors identified by general education teachers were (a) self-determination/self-advocacy, (b) career technical education, and (c) self-care/independent living skills, whereas the top three predictors identified by the special education teachers were (a) work experience, (b) self-determination/self-advocacy, and (c) social skills. Focus group results indicated the following themes: (a) all predictors are relevant and important, but some are more implementable for teachers than others; (b) content and curriculum dictate which predictors are most relevant to the curriculum and are able to be taught; (c) general and special educators have seen the predictors implemented but to various degrees and quality; and (d) some predictors are embedded as part of course/graduation requirements (e.g., graduation project requirements with specific social and functional skills). By focusing on the predictors that general educators have highlighted as important, relevant, and implementable, it seems like the predictors are aspects of transition planning that may be easily used to provide secondary transition professional development to general educators.

Even with results documenting general education teachers' perceptions that predictors of postschool success are relevant, important, and feasible for implementation, there are additional considerations for providing transition training to general education teachers (e.g., how to provide professional development). There are no studies addressing how general education teachers learn about transition services for students with disabilities, but there are studies available that address how to train special education teachers about transition services for

students with disabilities. Understanding how special education teachers receive professional development in this area may help understand how to support general education teachers in preparing students with high-incidence disabilities to be ready for college and careers.

Summary

General education teachers have been required to prepare students for college and careers and instruct students in their least restrictive environment (IDEA, 2004), and at least 81.2% of students with disabilities spend part of day in general education settings (NCES, 2019). Studies have shown that students with high-incidence disabilities who learned in general education settings had improved postsecondary education (e.g., Mazzotti et al., 2016, 2021; Test et al., 2009), employment (e.g., Mazzotti et al., 2016, 2021; Test et al., 2009), and independent living (Mazzotti et al., 2016, 2021; Test et al., 2009).

To engage general education teachers in providing transition services to students with disabilities, there are predictors of postschool success, which could be used in a novel manner to make it more likely students with high-incidence disabilities are prepared for college and careers. The 23 predictors of postschool success are research-supported and are correlated with improved postschool education/training, employment, and independent living outcomes (Mazzotti et al., 2016, Mazzotti et al., 2021; Rowe et al., 2015; Test et al., 2009). General education teachers have reported the predictors of postschool success are important, relevant, and feasible for implementation (Kwiatek et al., 2021). However, to implement the predictors of postschool success, general education teachers will need transition professional development and training, which could be delivered face-to-face (Flannery et al., 2015) or online (Kim & Morningstar, 2007).

Review of Literature Conclusion

Since *Brown v. Board of Education*'s pivotal ruling emphasizing the importance of civil rights, federal legislation has highlighted the importance of ensuring students with disabilities have access to similar experiences of their peers without disabilities. For example, the All Handicapped Children Act of 1975 ensured students with disabilities access a free and appropriate public education. In subsequent amendments, the All Handicapped Children Act of 1975 – later named the Individuals with Disabilities Education Act – ensured that (a) students with disabilities were prepared for adult life (IDEA, 1990); (b) general education teachers were involved in IEP planning (IDEA, 1997); and (c) general education settings were considered first as the least restrictive environment (IDEA, 2004). Along with disability-specific legislation, multiple pieces of federal legislation support students with disabilities through mandates for all students. For example, the School-to-Work Opportunities Act of 1994 mandated general education teacher involvement in preparing all students for the world of work. Additional legislation mandated the use of scientifically-based instructional practices for students (e.g., NCLB, 2002). Reaffirming NCLB (2002) mandates for scientifically-based instructional practices, ESSA (2015) mandated the use of evidence-based interventions. Additionally, ESSA mandated all students, including students with high-incidence disabilities, were prepared for college and careers. These legislative mandates have evolved over time to highlight the criticality of addressing students with disabilities' poor in-school and postschool outcomes.

For over 30 years, students with high-incidence disabilities' lower rates of postschool education/training, employment, and independent living outcomes compared to peers without disabilities have been well documented (e.g., Blackorby & Wagner, 1996; Newman et al., 2011). Since the NLTS to the NLTS-2, students with high-incidence disabilities have made minimal

gains in all outcome areas with one possible explanation being the evolving federal legislation and mandates that have required schools prepare all students for college and careers using evidence-based instructional practices (e.g., ESSA, 2015). To help ensure students experience improved postschool outcomes, practitioners may consider aligning programs and practices with the predictors of postschool success (Mazzotti et al., 2016, 2021; Test et al., 2009). By implementing the predictors of postschool success in general education classes, it is more likely all students, including students with high-incidence disabilities, will be prepared for college and careers.

Specific practices and frameworks have highlighted the need for educators to implement strategies for students to develop knowledge and skills needed for adult life (e.g., self-determination skills, knowledge about careers, communication skills). These concepts align well with the predictors of postschool success (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009). Considering this alignment between the predictors of postschool success and the college and career readiness literature, the predictors of postschool success may fill a gap in preparing students with high-incidence disabilities to be ready for college and careers. By implementing the predictors of postschool success in inclusive settings, all students, including students with high-incidence disabilities, will more likely experience improved postschool success. To prepare students with high-incidence disabilities in inclusive environments, it is critical to examine general education teachers' role in preparing students to be ready for college and careers.

General education teachers are mandated to prepare students for college and careers and instruct students in their least restrictive environment (ESSA, 2015; IDEA, 2004), and over 80% of students with disabilities spend at least part of their day learning in general education settings

(NCES, 2019). The predictors of postschool success are correlated with improved postschool outcomes, and general education teachers have reported the predictors of postschool success are important, relevant, and feasible for implementation (Kwiatek et al., 2021). To learn about the predictors of postschool success, general education teachers will need transition professional development and training, which will be delivered online given the Corona Virus-19 (COVID-19) pandemic.

The current study focuses on teaching general education teachers about three predictors of postschool success identified as relevant, important, and feasible for implementation by general education teachers (i.e., career technical education, self-care/independent living, self-advocacy/self-determination; Kwiatek et al., 2021). Given the current COVID-19 pandemic, this professional development will occur online with an asynchronous online intervention. This study will contribute to the literature by providing general education teachers with research-supported strategies to prepare all students, including students with high-incidence disabilities, to more likely be ready for college and careers.

CHAPTER 3: METHOD

The purpose of this study was to examine the effects of an asynchronous intervention (General Educators Now Embedding Research (for) Adult Life in Educational Design [GENERAL ED]) on general education teachers' (a) knowledge, (b) use, (c) confidence, (d) implementation, and (e) generalization of research- and evidence-based, in-school predictors of postschool success. This study focused on teaching two general education teachers to embed the predictors of postschool success in classroom settings. I utilized a single-case, multiple baseline across predictors design replicated across participants to show increased teacher knowledge and use of the predictors of postschool success.

Institutional Review Board

Prior to intervention implementation and data collection, the University of North Carolina at Charlotte's (UNC Charlotte) Institutional Review Board (IRB) for research with human subjects provided approval to conduct the study (IRB # 19-0491). I obtained informed consent from both participants for intervention participation. Because the intervention included in-class observations of the participants' instructional practices, I requested participants obtain and return building- and or district-level administration permission for conducting virtual observations with informed consent documentation. I used the online meeting platform the participant used for virtual classroom instruction (i.e., Google Meets for Patrick; Zoom for Ron) to conduct observations.

Researcher

I was a third-year doctoral student in the Department of Special Education and Child Development at UNC Charlotte at the time of this study. Prior to my doctoral program, I received a Master's of Science in Special Education. Prior to my doctoral studies, I taught

secondary students with high- and low-incidence disabilities in co-taught and self-contained settings. During that time, I taught a variety of academic (e.g., history, mathematics, English) and functional content (e.g., work program courses) and ran my district's work program. More recently, I co-authored multiple manuscripts focused on secondary transition, including predictors of postschool success, evidence-based practices, and interagency collaboration, along with book chapters on interagency collaboration. I was the interventionist and primary data collector for this study. I trained a second doctoral student to collect interrater reliability and interobserver agreement data for the dependent variable and additional measures. I (a) obtained UNC Charlotte IRB approval, (b) recruited participants, (c) coordinated with participants to obtain building- and or district-level administration permission for virtual teacher observations, (d) created intervention materials, and (e) communicated plans and progress with my dissertation committee.

Participants

The study included two participants. Each participant was assigned a pseudonym. Both participants were recruited using convenience sampling and met these inclusion criteria: (a) held a state-issued general education teaching license; (b) taught secondary students; and (c) worked in a public, high school setting (grades 9-12). Exclusion criteria were if a participant did not (a) hold a state-issued general education teaching license; (b) did not teach secondary students; and/or (c) did not work in a public, high school setting (grades 9-12).

Patrick

Patrick was recruited through my professional contacts in one Southeast state. I shared recruitment materials with faculty who taught secondary licensure courses for general education teachers at one university in the southeast. Based on these recruitment efforts, Patrick contacted

me expressing interest in participating. After confirming eligibility for the study, Patrick was enrolled. Table 2 provides participant demographic information.

Ron

Ron was recruited from my professional contacts from one state in the Midwest. I shared recruitment materials with one Regional Office of Education Professional Development/School Improvement contact. My contact shared recruitment information through professional connections. Based on these recruitment efforts, Ron contacted me expressing interest in participating. After confirming eligibility for the study, Ron was enrolled. Table 2 provides participant demographic information.

Table 2

Participant Demographic Information

Demographic	Patrick	Ron
Gender	Male	Male
Age	44	36
Race/Ethnicity	Black	Caucasian
Years as a Certified Teacher	20	14
Teaching Certification	Master's Degree in Grades 6 - 9	K-12 Spanish
Content/Classes Taught	Math I	Spanish
Number of Students Taught per Day	79	40
Number of Students Taught with Disabilities	10	0 with IEPs; 3 with 504s for the current school year
Grade Level(s) Taught	9	9 – 12
Urbanicity of School Setting	Suburban	Rural
Percent of Students at School	100%	100%
Who Receive Free/Reduced Lunch		
Title I School (Yes/No)	No	Yes

Setting

I delivered the online intervention using ObaVerse (OBA), which is a learning management system (LMS) that integrates a wide-range of other webinar/video chat tools. OBA is described further in the materials section. Participants were given a free account to OBA (<https://www.obaverse.net>) that could be accessed through any internet-capable device (e.g., desktops, tablets, smart phones) with a modern browser. OBA uses a responsive design to deliver an optimal user experience, whatever the platform, device, assistive technology, screen resolution, or bandwidth. Used for many projects around the world, OBA contains support for users with limited access to technology (e.g., high-speed internet). OBA also complies with accessibility standards and is available in at least 45 languages. OBA's online learning platform (OLP) offers a secure learning environment, employing industry best practices for data storage and encryption, both for general user data and specific to the regulatory requirements for working with K-12 students, including the Americans with Disabilities Act (ADA), Family Educational Rights and Privacy Act (FERPA), and Children's Online Privacy Protection Act (COPPA) guidelines. This security covers all project materials stored within the OLP. It also includes real-time monitoring and reporting, a powerful analytics engine and clear audit trails of user activity and communication, providing the tools necessary for maintaining a safe space for online learning and in-depth analysis of user engagement. Lastly, only the research team and OBA team members had access to direct participant data and access conformed to appropriate data management protocols. OBA team members had access to data to support individuals when technical difficulties arose. Participants had an individual login, which was used to access OBA. Participants were provided with training to navigate OBA and training specifically for accessing the intervention. All screencasts (i.e., online videos) and probes were presented to and completed

by participants via OBA's secured platform. Participants accessed screencasts, probes, questionnaires, and case studies using OBA.

Materials

I used OBA, Doodly, YouTube, and Edpuzzle to deliver the intervention and collect data. To access intervention materials on OBA's platform, participants needed a free OBA account login and an internet-accessible device (e.g., laptop, tablet). I created an OBA account for each participant. Participants received an email to confirm their accounts and select their passwords. I created screencasts with Doodly, which lasted approximately 5 to 7 min. Closed captioning was auto populated and adjusted for accuracy with each video using YouTube's Closed Captioning features. Each video was embedded into Edpuzzle to support self-check assessment questions within the intervention to allow participants to assess their understanding and provide immediate feedback within each screencast. After watching each screencast, participants completed a probe which was scored using digital copies of rubrics. For virtual observations, I used digital access (i.e., Zoom, Google Meets) and Movavi Screen Recorder 21 to audio record the teaching sessions, which were recorded and stored on my finger-print-protected laptop. Observations were scored using digital copies of rubrics and the recorded teaching session.

Dependent Variable and Secondary Measures

This study examined three variables. The dependent variable was the number of points earned on the predictor knowledge probes. The first secondary measure examined confidence in knowledge and implementation of the predictors of postschool success when designing instruction for students. The other secondary measure examined teacher use of and student access to the predictors of postschool success.

Dependent Variable

The dependent variable was the number of points earned on the predictor knowledge probes based on knowledge of the predictors of postschool success taught in each screencast. Each predictor probe was worth 12 points and included questions related to the (a) definition of the predictor, (b) outcome areas for the predictor, (c) identification of one essential characteristic for the predictor, (d) two examples of implementing the first essential characteristic, (e) identification of a second essential characteristic, and (f) two examples of implementing the second essential characteristic. Items were scored on a 3-point Likert-type rating scale (i.e., 0=incorrect, 1=partially correct, 2=correct). Each predictor probe was worth 12 points and was graphed for a total possible score of 36 points per probe. Appendix A includes the predictor knowledge probe scoring guidelines for the dependent variable rubric.

Secondary Measure: Confidence in Knowledge and Implementation

The first secondary measure was confidence in knowledge and implementation of using the predictors of postschool success when designing instruction for students. The questionnaire was a pre- and post-intervention questionnaire. Participants rated their confidence in knowledge and implementation of using the predictors in instruction for each of the three predictors taught in the screencasts (i.e., career technical education, self-care/independent living skills, self-determination/self-awareness). Each item was rated on a 5-point Likert-type scale (1 = *not confident* to 5 = *very confident*). Appendix B includes the secondary measure: confidence in knowledge and implementation questionnaire.

Secondary Measure: Teacher Use and Student Access

The other secondary measure examined teacher use and student access to the predictors of postschool success. For this measure, I conducted virtual observations, which were audio

recorded with Movavi Screen Recorder 21. During observations, I examined the following: (a) to what extent was the predictor shared with students; (b) to what extent was the essential characteristic shared with students; (c) to what extent was the rationale for instruction on the essential characteristic shared with students; (d) to what extent did the teacher embed the predictor throughout the lesson; and (e) to what extent did the students engage in an activity or discussion related to the predictor? I scored each item on a 3-point Likert-type rating scale (i.e., 2 points for complete responses, 1 point for partial responses, 0 points for missing or inaccurate responses). Appendix C includes the secondary measure: teacher use and student access observation scoring guidelines.

Generalization

Stokes and Baer (1977) highlighted nine methods for promoting generalization, including (a) train and hope, (b) sequential modification, (c) introduce to natural maintaining contingencies, (d) train sufficient exemplars, (e) train loosely, (f) use indiscriminable contingencies, (g) programming common stimuli, (h) mediate generalization, and (i) train to generalize. GENERAL ED includes training sufficient exemplars, which includes providing enough examples to help individuals learn to generalize content across settings (Stokes & Baer, 1977). Within this study, I used a generalization probe. A generalization probe is “[a]ny measurement of a learner’s performance of a target behavior in a setting and/or stimulus situation in which direct training has not been provided” (Cooper et al., 2020, p. 792). The generalization probe was a pre- and post-intervention probe. Participants read a brief case study, described a scenario of including predictors into instruction (i.e., one from each predictor); described one essential characteristic; and identified an aligned activity that could be used within a general education course. Items were scored on 3-point Likert-type scale (0 = unanswered question or

question answered incorrectly, 1 = partially correct answer, 2 = completely correct answer).

Participants could earn a total of 18 points. This assessed potential setting/situation generalization and occurs when a person exhibits the target behavior in a setting or with stimuli that are different than instructed (Cooper et al., 2020). Appendix D includes the generalization probe.

Interrater Reliability

Interrater reliability is “an indication of the consistency with which different individuals rate the same behavior the same way” (Epstein et al., 1999, p., 325). All data were automatically tracked on OBA (e.g., duration of intervention sessions, completed probes).

Dependent Variable

For each participant, interrater reliability data were collected on the dependent variable for a minimum of 30% of sessions (i.e., baseline, intervention, maintenance) across each content area (i.e., career technical education, self-care/independent living skills, self-advocacy/self-determination) for each participant. Interrater reliability was collected on the dependent variable for a minimum of 30% of baseline, intervention, and maintenance probes across each predictor. Scores were compared to calculate item-by-item interrater agreement.

Secondary Measure: Confidence in Knowledge and Implementation

For the secondary measure: confidence in knowledge and implementation of the predictors of postschool success, interrater reliability data were collected for all assessments of the measure for each participant. Interrater reliability was collected on this secondary measure for one pre-intervention and one post-intervention assessment. The second rater compared my reporting of social validity measures item-by-item with original data to ensure accuracy in data reporting.

Generalization

For the generalization, interrater reliability data were collected for all assessments of the measure for each participant. Interrater reliability was collected on this generalization measure for one pre-intervention and one-post-intervention assessment. Scores were compared to calculate item-by-item interrater agreement.

Interobserver Agreement

Interobserver agreement is [t]he degree to which two or more independent observers report the same observed values after measuring the same events” (Cooper et al., 2020, p. 794). Interobserver agreement was calculated for the secondary measure assessing teacher use and student access to the predictors of postschool success for each of the virtual observation sessions. Interrater was collected on interobserver agreement one time post-intervention per participant. I observed each participant providing virtual instruction to students, and I audio recorded each session using Movavi Screen Recorder 21. The second rater independently listened to the audio recording and scored the observations. Scores were compared to calculate item-by-item interobserver agreement.

Social Validity

Social validity “[r]efers to the extent to which target behaviors are appropriate, intervention procedures are acceptable, and important and significant changes in target and collateral behaviors are produced” (Cooper et al., 2020, p. 800; Wolf, 1978). Post intervention, I collected general education teachers’ perceptions of the social acceptability and feasibility of the GENERAL ED intervention. General education teacher participants (i.e., direct consumers) completed the social validity measures. I collected social validity data after intervention and maintenance data collection was complete. Participants completed two social validity

questionnaires online via OBA (see Appendices E [feasibility evaluation] and F [intervention rating]). The feasibility evaluation contained 19 Likert-type rating scale questions (i.e., 1 [strongly disagree] to 6 [strongly agree]) for general design features, format, language and grammar, user functions, and performance feedback. This measure was adapted from Martens et al. (1985). The intervention rating scale contained 17 Likert-type rating scale questions (i.e., 1 [strongly disagree] to 6 [strongly agree]) related to participant perceptions of the intervention. This measure was adapted from Foster and Price (1996).

Interrater Reliability. For the social validity measures (i.e., feasibility evaluation, intervention rating scale), interrater reliability data were collected for each assessment for each participant. Interrater reliability was collected on social validity measures one time for each measure (i.e., feasibility evaluation, intervention rating scale) post-intervention per participant. The second rater compared my reporting of social validity measures item-by-item with original data to ensure accuracy in data reporting.

Data Analysis

This study implemented a single-case, multiple baseline design across behaviors replicated across participants (Baer et al., 1968; Cooper et al., 2020; Gast & Ledford, 2018) to investigate the effects of an asynchronous online intervention on general education teacher knowledge of three research- and evidence-based, in-school predictors of postschool success (i.e., career technical education, self-care/independent living skills, self-determination/self-advocacy). During baseline, I collected data on participant knowledge across three predictors (i.e., career technical education, self-care/independent living skills, self-determination/self-advocacy). Initially, I collected a minimum of three baseline data points per participant (Kratochwill et al., 2013). Once baseline data were stable for the first predictor, participants

began intervention. Intervention began with the predictor for which the participants had the lowest, most stable baseline. If all data represented the lowest and most stable baseline (no difference reflected across content areas), I used an online random generator to assign participants to one of the three predictors. I examined for critical components of visual analysis (i.e., immediacy of effect, level, trend, variability, data consistency across phases, overlapping data, consistency of effect; Cooper et al., 2020) to determine if a functional relation occurred. Along with critical components of visual analysis, participants had to complete a minimum of five modules (i.e., screencasts, probes) and meet mastery of nine of 12 points for intervention. After examining both critical components of visual analysis and mastery criteria, participants entered the second intervention phase (i.e., next predictor with lowest, most stable score). Baseline data continued to be collected on the predictor(s) for which participants had not entered intervention. I repeated this process for each predictor.

Nonparametric Analysis of Intervention Effects

Tau-*U* was used to calculate the effect size of the intervention's impact on the dependent variable. Tau-*U* "combines nonoverlap between phases with trend from within the intervention phase" (Parker et al., 2011, p. 284). Tau-*U* was selected because it "is flexible in that it can calculate trend only, non-overlap between phases only, or a combination" (Parker et al., 2011, p. 298). Tau-*U* scores range between, and inclusive of, -1 and +1 (Tarlow, 2017). The closer to the absolute value of 1, the larger the Tau-*U* effect size (Brossart et al., 2018). Parker and Vannest (2012) suggested using a bottom-up analysis approach to calculating single-case research effect size because it allows the researcher to stay in control of decisions needed for effect sizes.

GENERAL ED Procedures

General education teachers participated in the intervention and completed two to three asynchronous online modules per week. Each module was estimated to take approximately 15 to 17 min to complete. Each module consisted of a screencast and knowledge probe. After watching a screencast, participants completed a knowledge probe to evaluate participant knowledge of three predictors of postschool success. Prior to and following intervention, I asked participants to rate their confidence with the predictors of postschool success. Also, participants completed a generalization case study pre- and post-intervention. After completing all intervention modules (i.e., screencasts probes), I virtually observed (i.e., Google Meets for Patrick; Zoom for Ron) participants teaching one lesson of their choice to evaluate the extent to which participants embedded the predictors of postschool success into instruction. I conducted virtual observations using the platform (i.e., Google Meets, Zoom) the participants used to deliver instruction to their class.

Pre-baseline

Prior to entering baseline, participants completed an OBA training to help ensure participants understood how to navigate OBA. For this training, participants watched a pre-recorded screencast of the researcher navigating the intervention on Oba. After following the screencast and completing a brief scavenger hunt activity, participants completed a one-question OBA probe to document their feelings related to comfortability navigating the intervention. The criterion for mastery was scoring one out of one on the OBA probe.

Baseline

During the baseline phase, participants completed a minimum of three knowledge probes for each predictor (i.e., career technical education, self-care/independent living skills, self-

determination/self-advocacy; Kratochwill et al., 2013). I examined participant knowledge prior to intervention. Participants completed the predictor probe and did not receive performance feedback or additional information related to intervention content and procedures. For each of the three predictors, participants were asked to (a) define the predictor, (b) state the IDEA-required outcome area, (c) list two essential characteristics, and (d) provide two examples of implementing the essential characteristics in a general education classroom. The researcher collected and scored baseline data for a minimum of three to five data points until data reflected a low level of knowledge with stable data. In single-case research, stable data mean the participants have a series of data points that are similar in score and not drifting in the direction of the desired behavior change (Cooper et al., 2020; Kratochwill et al., 2013).

GENERAL ED Intervention

To ensure each intervention screencast followed the same format and aligned with principles of instructional design (McTighe & Thomas, 2003), I used a checklist. The checklist was used to ensure I included (a) an introduction, (b) the name and definition of the predictor, (c) relevant IDEA-required outcome areas, (d) two essential characteristics, (e) two examples of implementing each essential characteristic into general education classrooms, and (f) a self-check assessment. During intervention, participants watched a series of five asynchronous screencasts on each of three predictors (i.e., career technical education, self-care/independent living skills, self-determination/self-advocacy). Each screencast required approximately 5 to 7 min to complete. For each screencast, the participant learned about the (a) definition of the predictor, (b) relevant IDEA-required outcome areas, (c) two essential characteristics, and (d) two examples of implementing the essential characteristic into a general education classroom. For all predictors, the definition and IDEA-required outcome areas were identified from Mazzotti et al. (2021). The

two essential characteristics were identified from Rowe et al. (2015). The participants were provided with specific examples of implementing the essential characteristics, and those examples changed within each screencast. For example, with career technical education, participants learned how to “provide career counseling and guidance to assist students in career planning and development aligned with the students’ preferences, interests, needs, and skills” (Rowe et al., 2015, p. 119). To address this essential characteristic in general education classrooms, participants learned about conducting interest inventories and personality assessments, using interest inventory and personality assessment data to tailor instruction, and how to embed resume writing into a secondary history class to write resumes for famous historical figures (e.g., Martin Luther). For self-care/independent living skills, the participants learned to “[p]rovide instruction, as needed based on assessment data, in (a) financial planning, (b) self-help, (c) cooking, (d) housekeeping, (e) home maintenance, (f) using transportation, (g) clothing care, (h) accessing community services, (i) time/ organizational management, (h) self-determination, (k) social roles/ citizenship, (l) community/peer relationships, or (m) critical thinking and problem solving” (Rowe et al., 2015, p. 121). Specific examples shared with general education teachers were to provide examples of how general education teachers can embed these skills within instruction (e.g., teaching time/organizational management to prepare for final exams). For self-advocacy/self-determination, participants learned to “[e]nsure all students, including those with significant disabilities, have a functional communication system to engage in choice making, problem solving, goal setting, taking initiative to reach goals, and accepting consequences for one’s action” (Rowe et al., 2015, p. 121). To address this in a general education classroom, participants learned about students setting goals and monitoring student-created goals and, within teacher assigned deadlines, general education teachers learned to

support students with meeting deadlines related to outlines, rough drafts, peer review, and final drafts. After watching an intervention screencast, participants answered questions on a probe about the screencast. For example, the first content area may be career technical education, which would include the (a) definition of the predictor; (b) IDEA-required outcome areas for the predictor; (c) two essential characteristics; and (d) two examples of implementing the essential characteristic into a general education classroom. The probes lasted approximately 10 min for a total of 15 to 17 min (5 to 7 min for intervention screencast, 10 min for probe) per intervention session. After completing the first intervention session, participants watched a second intervention screencast and completed a second probe related to the screencast. Intervention occurred per each content until participants achieved mastery. Mastery was defined as (a) completing a minimum of five modules (i.e., screencasts, probes); (b) having an increase in score from baseline; and (c) scoring at least 9 of 12 for three probes.

Maintenance

Maintenance refers to the participant exhibiting the target behavior after instruction has stopped (Cooper et al., 2020; Gast & Ledford, 2018). Once the participant achieved mastery for each content area, they began maintenance. When participants met mastery criteria for each of the three content areas, intervention stopped. After each participant completed the first predictor area, maintenance data were collected for six weeks. After each participant completed the second predictor, maintenance data were collected for four weeks. After each participant completed the third predictor area, maintenance data were collected for two weeks.

Procedural Fidelity: Participant Usage Data

As defined by Billingsley et al. (1980), procedural fidelity refers to research being conducted as designed (Billingsley et al., 1980; Ledford & Gast, 2014). The purpose of assessing

procedural fidelity “is to determine, with a level of confidence, the internal validity of a study and whether the outcomes obtained from a treatment or intervention were in fact related to the intervention and not extraneous variables” (Harn et al., 2017, p. 289). A second rater and I assessed procedural fidelity. Procedural fidelity was assessed for this study in the context of engagement in eLearning. User engagement is important because “instructional designers want to create learning environments to shape behavior that leads to enhanced learning outcomes” (Wiebe & Sharek, 2016, p. 53). The reason for this is that instructional designers “wish to encourage learners to put forth time and effort toward thinking and experiencing learning content and activities that are deemed to be central to schema (i.e., mental concept) development and skill acquisition” (Wiebe & Sharek, 2016, p. 53). Gerencser et al. (2020) found most asynchronous online learning intervention studies examined in their review did not report procedural fidelity. This may be true because asynchronous online interventions are designed and developed prior to participant use. However, this is problematic because procedural fidelity is an important component of single-case research (e.g., Horner et al., 2005). To assess self-directed meaningful interaction and procedural fidelity (O’Brien & Toms, 2008; Gerencser et al., 2020), for the purposes of this study, I evaluated 33.33% of online session participation by checking log in time, time spent in each module (i.e., screencast, probe), and the duration of time it took for participants to complete each module. A second doctoral student and I independently calculated the minimum, mean, and maximum time spent with each asynchronous online screencast and probe to examine how long it took each participant to complete the modules (i.e., screencasts, probes) in OBA. For both Ron and Patrick, usage data were calculated on 33.33% of participant logins. These data helped determine if the intervention was implemented as prescribed by ensuring the participant accessed each page (i.e., modules pages, probe pages) of

the module (Gerencser et al., 2020). Randomly assessing 33.33% of intervention modules (i.e., screencasts, probes), procedural fidelity for Patrick ranged from 29 min and 39 s to 61 min and 30s, with a mean of 47 min and 33s, to complete one screencast and the relevant probe.

Randomly assessing 33.33% of intervention modules (i.e., screencasts, probes), procedural fidelity for Ron ranged from 20 min and 2 s to 28 min and 48 s, with a mean of 25 min and 21s, to complete one module and the relevant probe.

CHAPTER 4: RESULTS

Results of this study are presented within this chapter. Interrater reliability, interobserver agreement, and procedural fidelity are listed first. Then, results are presented for each research question.

Interrater Reliability

Data for the dependent variable (i.e., teacher knowledge of three predictors of postschool success); the first secondary measure (i.e., confidence in the predictors of postschool success); and generalization (i.e., case study) were automatically tracked on OBA. Results for interrater reliability are presented in this section. Data for the other secondary measure (i.e., teacher use and student access) were the only measure not automatically tracked on OBA. Because this measure included direct observation, interobserver agreement was calculated, and results are also presented within this section.

Dependent Variable: Teacher Knowledge of the Predictors of Postschool Success

Interrater reliability for the dependent variable is shared within this section. First, results for Patrick are shared. Then, results for Ron are shared.

Patrick

Interrater reliability was scored for 39.13% of all probes for the dependent variable (i.e., teacher knowledge of the predictors of postschool success). During baseline, interrater reliability ranged from 50% to 100% with a mean of 86.11%. During intervention, interrater reliability ranged from 83.33% to 100% with a mean of 94.44%. During maintenance, interrater reliability was 100% across probes with a mean of 100%. Overall, interrater reliability scores ranged from 50% to 100% with a mean of 92.59% across all phases.

Ron

The second rater independently evaluated 36.37% of all probes for the dependent variable (i.e., teacher knowledge of the predictors of postschool success). During baseline, interrater reliability was 100% across all probes, with a mean of 100%. During intervention, interrater reliability ranged from 83.33% to 100% with a mean of 97.22%. During maintenance, interrater reliability ranged from 83.33% to 100% with a mean of 98.15%. Overall interrater reliability scores ranged from 83.33% to 100% with a mean of 98.46%.

Secondary Measure: Confidence in Knowledge and Implementation

Interrater reliability data were collected for this measure and includes one pre-assessment and post-assessment per participant. For Patrick, interrater reliability was 100% pre- and post-intervention, with a mean of 100%. Ron, interrater reliability was 100% pre- and post-intervention, with a mean of 100%.

Possible Generalization of the Predictors of Postschool Success

All data for this measure were recorded on OBA. The second rater independently scored each case study. Interrater reliability was calculated for this measure and included one pre-assessment and post-assessment per participant. For Patrick, interrater reliability was 100%, with a mean of 100% for each of the three predictors for pre-assessment data. For Patrick's post-assessment data, interrater reliability was 100% with a mean of 100%. Interrater reliability was 100% for pre-assessment data for Ron. For Ron's post-assessment data, interrater reliability was 100%, with a mean of 100%.

Interobserver Agreement

Teacher Use and Student Access to the Predictors of Postschool Success

Each observation was audio recorded to examine teacher instruction. This allowed for a second rater to independently score each recording. The second rater independently scored the audio recording for Patrick's observation. Interobserver agreement was 100% for Patrick's observation.

Dependent Variable

Research Question 1: What is the effect of GENERAL ED on general education teachers' knowledge of the predictors of postschool success?

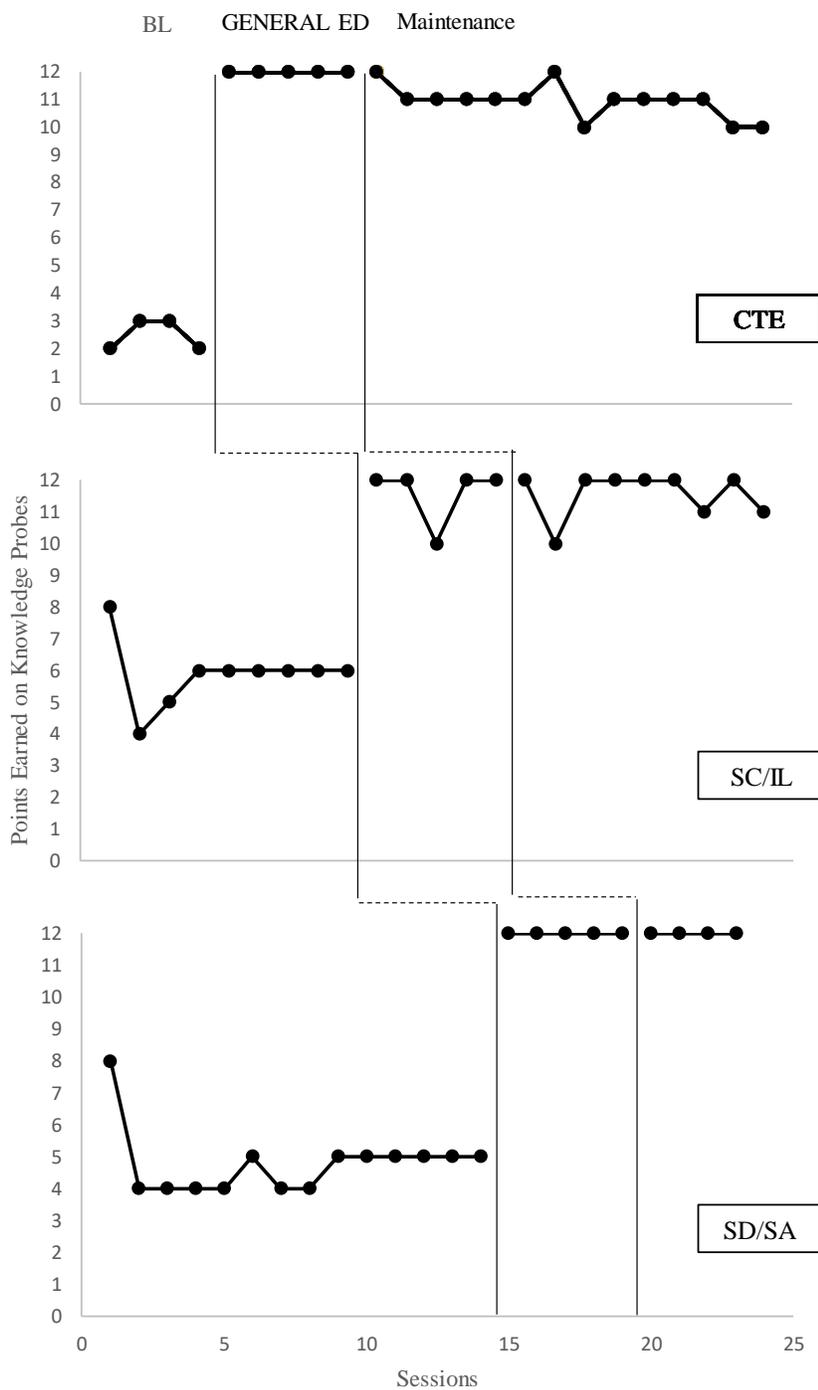
Results of the dependent variable (i.e., teacher knowledge of three predictors of postschool success) for each participant are presented below in Figures 4 and 5. Based on visual analysis of graphed data, results indicated a functional relation between the asynchronous online intervention (i.e., GENERAL ED) and general education teacher knowledge of three predictors of postschool success (i.e., career technical education, self-care/independent living, self-determination/self-awareness). Each graph reflects participant data across baseline, intervention, and maintenance phases. The total number of points Patrick and Ron received on the 36-point probe for each predictor is illustrated. Patrick and Ron could have earned a total of 12 possible points per predictor for a total of 36 points across the three predictors. For Patrick and Ron, Tau- U indicated a positive effect (Tau- $U = 1.0, p < .001$).

Patrick

Results for Patrick's knowledge of three predictors of postschool success are presented in Figure 4. Results indicated a functional relation between the asynchronous online intervention and Patrick's knowledge of three predictors of postschool success.

Figure 4

Patrick's Total Points Earned on Knowledge Probes



Note. CTE = career technical education; SC/IL = self-care/independent living; SD/SA = self-determination/self-advocacy.

Career Technical Education. During baseline, data for Patrick's knowledge of the career technical education predictor were low and stable with scores ranging from two to three points ($M = 2.5$). Because within-phase analysis indicated that data remained low and stable with flat trend, four data points were sufficient in baseline for career technical education.

During intervention, Patrick's knowledge of the career technical education predictor showed a change in level with zero trend and no variability. Patrick scored the maximum total points on all five probes ($M = 12$). His data were high, stable, and above baseline. Between-phases analysis indicated an immediacy of effect, and Patrick met mastery criteria; furthermore, there were no overlapping data (0.0%) between baseline and intervention phases.

Maintenance data for Patrick's knowledge of the career technical education predictor remained at high levels. The levels were slightly variable and showed a slightly decreasing trend. Maintenance data ranged from 10 to 12 ($M = 10.93$) across 14 maintenance probes (i.e., 6 weeks after intervention).

Self-Care/Independent Living. During baseline, data for Patrick's knowledge of the self-care/independent living predictor were low and stable with slight variability. His scores ranged from four to eight points ($M = 5.89$).

During intervention, data for Patrick's knowledge self-care/independent living predictor showed a change in level with zero trend and minimal variability. Patrick's scores across the five probes ranged from 10 to 12 ($M = 11.60$). His data were high, stable, and above baseline. Between-phases analysis indicated an immediacy of effect, and Patrick met mastery criteria; furthermore, there were no overlapping data (0.0%) between baseline and intervention phases.

Maintenance data for Patrick's knowledge of the self-care/independent living predictor remained at high levels. The levels were similar to intervention. Maintenance data were slightly

variable, showed a flat trend, and ranged from 10 to 12 ($M = 11.57$) across nine maintenance probes (i.e., 4 weeks after intervention).

Self-Determination/Self-Advocacy. During baseline, data for Patrick's knowledge of the self-determination/self-advocacy predictor ranged from four to eight points ($M = 5.89$). Within-phase analysis indicated data remained at a low level and stable with a flat trend.

During intervention, Patrick's knowledge of the self-determination/self-advocacy predictor showed a change in level with flat trend and no variability. Patrick scored the maximum total points on all five probes ($M = 12$). His data were high, stable, and above baseline. Between-phases analysis indicated an immediacy of effect, and Patrick met mastery criteria; furthermore, there were no overlapping data (0.0%) between baseline and intervention phases.

Maintenance data for Patrick's knowledge of the self-determination/self-advocacy predictor remained at high levels. The levels were the same as intervention. Data had no variability and a flat trend. Maintenance data were 12 points ($M = 12$) across four maintenance probes (i.e., 2 weeks after intervention).

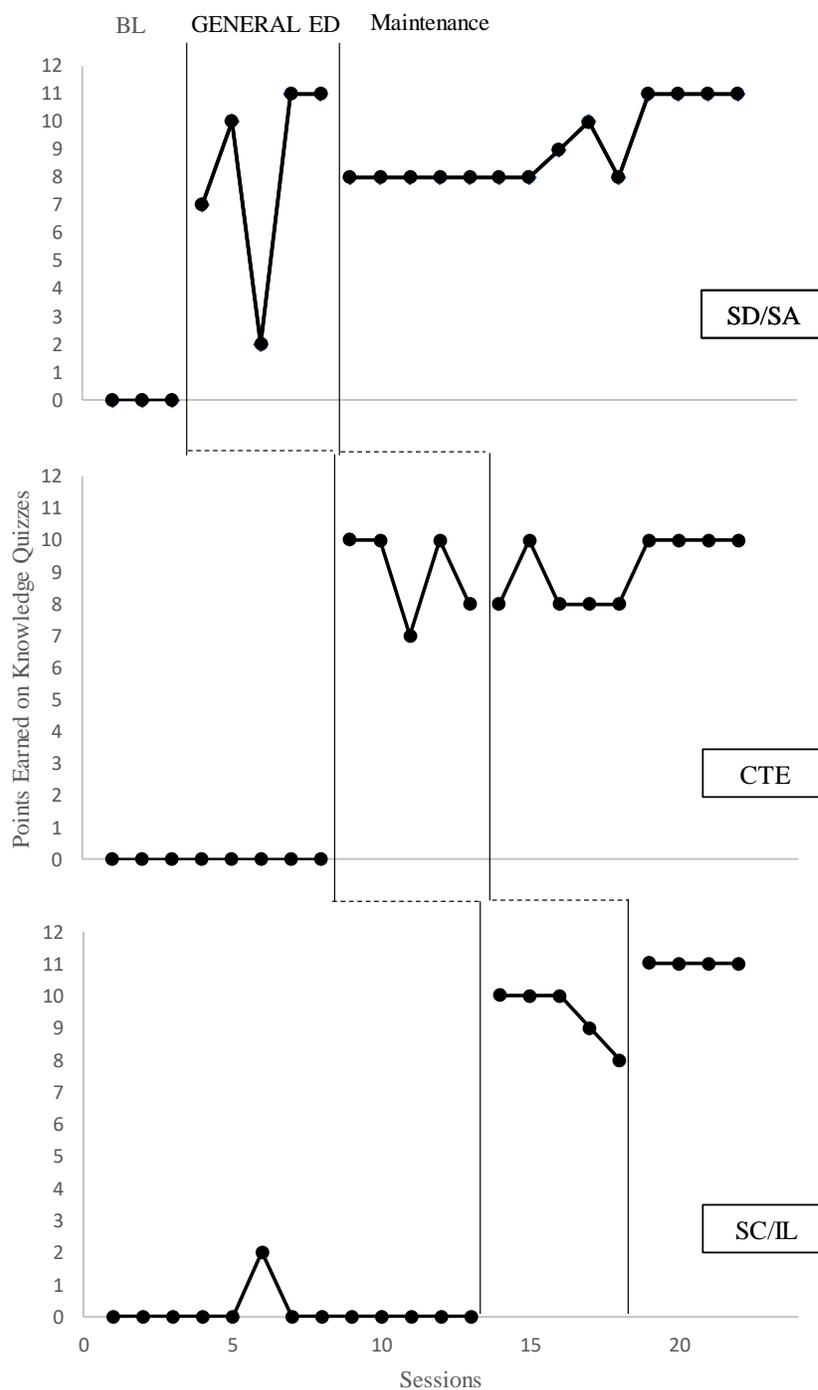
Nonparametric Analysis of Intervention Effects

Tau- U scores range from 0 (no effect) to the absolute value of 1 (largest effect). Patrick's results indicated a Tau- U of 1 with a p -value of less than 0.001. These results were statistically significant and indicate a large effect size.

Ron

Results for Ron's knowledge of three predictors of postschool success are presented in Figure 5. Results indicated a functional relation between the asynchronous online intervention and his knowledge of the predictors of postschool success.

Figure 5

Ron's Total Points Earned on Knowledge Probes

Note. SD/SA = self-determination/self-advocacy; CTE = career technical education; SC/IL = self-care/independent living.

Initial baseline data for Ron's knowledge of the predictors were low and stable with scores of zero across the three predictors. Therefore, I used a random online generator to determine the predictor for which Ron would start intervention. Based on results of the random online generator, I randomly assigned Ron to the self-determination/self-advocacy predictor for his first intervention phase.

Self-Determination/Self-Awareness. During baseline, data for Ron's knowledge of the self-determination/self-awareness predictor were low and stable with scores of zero ($M = 0$). Because within-phase analysis indicated that data remained low and stable with flat trend, three data points were sufficient in baseline for self-determination/self-awareness.

During intervention, Ron's knowledge of the self-determination/self-advocacy predictor showed a change in level with an increasing trend and some variability. Ron scored between 2 and 11 points ($M = 8.2$). His data were high, variable, and above baseline. Between-phases analysis indicated an immediacy of effect, and Ron met mastery criteria; furthermore, there were no overlapping data (0.0%) between baseline and intervention phases.

Maintenance data for Ron's knowledge of the self-determination/self-awareness predictor remained at high levels. The levels were slightly lower than intervention. Maintenance data were slightly variable, showed a slightly increasing trend, and ranged from 8 to 11 ($M = 9.07$) across 14 maintenance probes (i.e., 6 weeks after intervention).

Career Technical Education. During baseline, data for Ron's knowledge of the career technical education predictor were low and stable with all scores of zero ($M = 0$) across eight probes. Within-phase analysis indicated that data remained low and stable with flat trend.

During intervention, Ron's knowledge of the career technical education predictor showed a change in level with a slightly decreasing trend and slight variability. Ron's scores across the

five probes ranged from 7 to 10 points ($M = 9$). His data were high, slightly variable, and above baseline. Between-phases analysis indicated an immediacy of effect, and Ron met mastery; furthermore, there were no overlapping data (0.0%) between baseline and intervention phases.

Maintenance data for Ron's knowledge of the career technical education predictor remained at higher levels than baseline. The levels were slightly variable and showed a slightly increasing trend. Maintenance data ranged from eight to 10 ($M = 9.11$) points across nine probes (i.e., 4 weeks after intervention).

Self-Care/Independent Living. During baseline, data for Ron's knowledge of the self-care/independent living predictor were low and stable with scores ranging from 0 to 2 points ($M = 0.15$) across 13 probes. Within-phase analysis indicated that data remained low and stable with flat trend.

During intervention, Ron's knowledge of the self-care/independent living predictor showed a change in level with a slightly decreasing trend and slight variability. Ron's scores across the five probes ranged from 8 to 10 points ($M = 9.4$). Between-phases analysis indicated an immediacy of effect, and Patrick met mastery criteria; furthermore, there were no overlapping data (0.0%) between baseline and intervention phases.

Maintenance data for Ron's knowledge of the self-care/independent living predictor remained at high levels. The levels were slightly higher than intervention. Data had no variability and a flat trend. Maintenance data were 11 points ($M = 11$) across four maintenance probes (i.e., 2 weeks after intervention).

Nonparametric Analysis of Intervention Effects

Tau-*U* scores range from 0 (no effect) to the absolute value of 1 (largest effect). Patrick's results indicated a Tau-*U* of 1 with a *p*-value of less than 0.001. These results were statistically significant and indicate a large effect size.

Secondary Measures

Research Question 2: To what extent will GENERAL ED increase general education teachers' confidence in knowledge and implementation of the predictors of postschool success?

Research Question 3: To what extent will GENERAL ED increase general education teacher use and student access to the predictors of postschool success during instruction?

Participant Confidence in Knowledge and Implementation of the Predictors

To assess participants' assessment of confidence in knowledge and implementation of the predictors of postschool success, a questionnaire was used pre- and post-intervention. For confidence in knowledge and implementation of the predictors of postschool success, participants could rate scores on a Likert-type scale from 0 (*not confident*) to 5 (*very confident*). Results for both participants indicated growth from pre-intervention to post-intervention in confidence in knowledge and implementation of the predictors of postschool success. Tables 3 and 4 provide results for Patrick and Ron.

Patrick. Prior to and following intervention, Patrick rated six items, including three questions on his confidence in knowledge of each of the three predictors and three questions on his confidence in implementation of the three predictors of postschool success (i.e., career technical education, self-care/independent living, self-determination/self-advocacy). Each item was assessed using a Likert-type rating scale ranging from 1 (*not confident*) to 5 (*very confident*).

Before intervention, he rated a 3 (*somewhat confident*) for all six questions. After intervention, Patrick's scores increased by two points. His scores were 5 (*very confident*) for all six items. Table 3 provides Patrick's detailed responses to his confidence in and knowledge of the predictors of postschool success.

Table 3

Patrick's Confidence in Knowledge and Implementation of the Predictors of Postschool Success

	Pre-Intervention	Post-Intervention	Increase/ Decrease in Confidence
Knowledge of CTE	3 <i>somewhat confident</i>	5 <i>very confident</i>	+ 2
Implementation of CTE	3 <i>somewhat confident</i>	5 <i>very confident</i>	+ 2
Knowledge of SC/IL	3 <i>somewhat confident</i>	5 <i>very confident</i>	+ 2
Implementation of SC/IL	3 <i>somewhat confident</i>	5 <i>very confident</i>	+ 2
Knowledge of SD/SA	3 <i>somewhat confident</i>	5 <i>very confident</i>	+ 2
Implementation of SD/SA	3 <i>somewhat confident</i>	5 <i>very confident</i>	+ 2

Note. CTE = career technical education; SC/IL = self-care/independent living; SD/SA = self-determination/self-advocacy.

Ron. Prior to and following intervention, Ron rated six items, including three questions on his confidence in knowledge of each of the three predictors and three questions on his confidence in implementation of the three predictors of postschool success (i.e., career technical education, self-care/independent living, self-determination/self-advocacy). Each item was assessed using a Likert-type rating scale ranging from 1 (*not confident*) to 5 (*very confident*). Before intervention, he rated a 0 (*not confident*) for all six questions. After intervention, Ron's scores increased between 3 to 4 points. His scores ranged from 3 (*somewhat confident*) to 4 (*confident*) for all six items. Table 4 provides Ron's detailed responses to his confidence in and knowledge of the predictors of postschool success.

Table 4

Ron's Confidence in Knowledge and Implementation of the Predictors of Postschool Success

	Pre-Intervention	Post-Intervention	Increase/ Decrease in Confidence
Knowledge of CTE	0 <i>not confident</i>	4 <i>confident</i>	+ 4
Implementation of CTE	0 <i>not confident</i>	4 <i>confident</i>	+ 4
Knowledge of SC/IL	0 <i>not confident</i>	3 <i>somewhat confident</i>	+ 3
Implementation of SC/IL	0 <i>not confident</i>	3 <i>somewhat confident</i>	+ 3
Knowledge of SD/SA	0 <i>not confident</i>	4 <i>confident</i>	+ 4
Implementation of SD/SA	0 <i>not confident</i>	4 <i>confident</i>	+ 4

Note. CTE = career technical education; SC/IL = self-care/independent living; SD/SA = self-determination/self-advocacy.

General Education Teacher Use and Student Access to the Predictors

Patrick was observed virtually to assess the extent to which they embedded the predictors of postschool success into instruction and the extent to which students accessed the predictors of postschool success during instruction. Ron was unable to return administration approved informed consent; therefore, I was unable to observe Ron's instruction. Results of Patrick's observation are described below.

Patrick. Patrick's virtual class observation occurred during a general education Math I class for students in Grade 9 in a public high school in the southeast United States. Patrick was teaching using a hybrid method, and his students attended the lesson in both face-to-face and online formats. The observation lasted from 11:37 a.m. until 12:35 p.m. The observation lasted a total of 58 m 41 s. Patrick's class is on a block schedule with two 40 min blocks, and the observation stopped during independent student work time. During this time, I assessed Patrick using a rubric to identify the extent to which he embedded the predictors of postschool success into his instruction on five areas (i.e., predictor shared with students; essential characteristic shared with students; rationale for essential characteristic shared with students; predictor embedded throughout the lesson; student engagement with the predictor [e.g., activity, discussion]) using a 3-point, Likert-type rating scale (i.e., 0 to 2). Observation findings resulted in a total of 8 out of 10 possible points. Table 5 provides a detailed outline of these results.

Anecdotal Observation Notes. Patrick began the lesson by asking students to answer this question: "What questions do you think I was asked the most?" After a few responses, a student shared, "When am I going to use this in real life?" Patrick acknowledged that he is often asked about how mathematics is used in real life. He then connected the relevance of his instructional content with real life. For example, he noted, "Well, the great thing about these systems of

equation questions, they involve a lot of real-life examples.” He shared a few examples: “If you go to the movies and you were to buy popcorn and a drink, or if you were to go to the convenience store and you were to buy a candy bar and a drink.” He shared an example shared by a student in a different class: “Today, in my last class, a young man came up with the question what if you were to buy a Big Mac and a drink at McDonald’s.” Patrick connected his instruction with real life. After sharing these examples, he provided direct instruction on the steps to solve systems of equations using elimination. Next, Patrick asked students to create and solve their own systems of equations using elimination. This activity aligns with a career technical education essential characteristic related to providing instruction in soft skills and occupational specific skills (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009). This activity allowed students to practice solving mathematics problems; communicate with an authority figure (i.e., teacher); and collaborate with each other (Rowe et al., 2015).

Table 5

Patrick's Use and Student Access of Predictors of Postschool Success

Criteria	Rubric Wording	Point(s) Earned Out of 2
Predictor shared with students	Predictor was implicitly stated (e.g., discussed the predictor but not named) or used incorrect language	1 point
Essential characteristic shared with students	Essential characteristic was implicitly stated (e.g., discussed the essential characteristic but not named) or used incorrect language	1 point
Rationale for essential characteristic shared with students	Rationale was explicitly stated (e.g., we are talking about this essential characteristic because...) in preparation for adult life	2 points
Embed predictor throughout the lesson	The predictor and/or essential characteristic discussed more than once throughout the lesson (e.g., hook, teacher input, closure)	2 points
Student engagement with predictor (e.g., activity, discussion)	Teacher implemented an opportunity for students to engage with the predictor (e.g., discussion, worksheet, activity, project). Student response is not required – only teacher presentation	2 points
Total		8 points

Generalization

Research Question 4: To what extent will GENERAL ED promote possible generalization of the predictors of postschool success to the classroom setting?

Potential setting/situation generalization was examined through the use of two case studies (Cooper et al., 2020). Participants completed one case study pre- and post-intervention.

Patrick

Prior to and following intervention, Patrick was asked to name three predictors of postschool success (i.e., career technical education, self-care/independent living, self-determination/self-awareness); an essential characteristic for each predictor; and create an activity for implementing the predictor using a case study. Out of a total of 18 points, Patrick scored nine points for baseline on the generalization measure. After intervention, Patrick scored a total of 17 points, an increase of 9 points. Refer to Table 6.

Table 6

Patrick's Results based on Generalization Case Studies

Rubric Description	Baseline Points	Post Intervention Points	Increase/ Decrease
Identified career technical education as a predictor	0	2	+ 2
Identified one essential characteristics	0	2	+ 2
Activity aligned with essential characteristic	0	1	+ 1
Identified self-determination/self-advocacy as a predictor	2	2	+ 0
Identified one essential characteristics	1	2	+ 1
Activity aligned with essential characteristic	1	2	+ 1
Identified self-care/independent living as a predictor	1	2	+ 1
Identified one essential characteristics	2	2	+ 0
Activity aligned with essential characteristic	2	2	+ 0
Points Earned	9	17	+ 8 points

Ron

During baseline and after intervention, Ron was asked to name three predictors of postschool success (i.e., career technical education, self-care/independent living, self-determination/self-awareness); an essential characteristic for each predictor; and create an activity for implementing the predictor. Out of a total of 18 points, Ron scored 0 points for baseline. After intervention, Ron scored a total of 18 points, an increase of 18 points. Refer to Table 7.

Table 7

Ron's Results based on Generalization Case Studies

Rubric Description	Baseline Points	Post Intervention Points	Increase/ Decrease
Identified career technical education as a predictor	0	2	+2
Identified one essential characteristics	0	2	+2
Activity aligned with essential characteristic	0	2	+2
Identified self-determination/self-advocacy as a predictor	0	2	+2
Identified one essential characteristics	0	2	+2
Activity aligned with essential characteristic	0	2	+2
Identified self-care/independent living as a predictor	0	2	+2
Identified one essential characteristics	0	2	+2
Activity aligned with essential characteristic	0	2	+2
Total Points Earned	0	18	+18

Social Acceptability and Feasibility

Research Question 5: What are general education teachers' perceptions of the social acceptability and feasibility of the GENERAL ED intervention?

This research question was used to assess general education teachers' perceptions of the social acceptability and feasibility of the GENERAL ED intervention. The first social validity measure was a feasibility measure for which participants were asked to assess the GENERAL ED modules; refer to Appendix E. The second social validity measure was an intervention rating scale; refer to Appendix F. Both social validity measures were administered on OBA after participants completed intervention. The social validity measures assessed the social importance of behavior change and social acceptance of the intervention (Cooper et al., 2020).

Feasibility Evaluation

Patrick. Patrick completed 19 questions across five topics using a 6-point Likert-type scale (i.e., from 1 [*strongly disagree*] to 6 [*strongly agree*]) to assess feasibility of the online asynchronous intervention. Overall scores ranged from 5 (*agree*) to 6 (*strongly agree*) with a mean of 5.79. Refer to Table 8.

Table 8

Patrick's Ratings on the Feasibility Evaluation

Topic	Rating
General Design Features	
Directions for using ObaVerse Learning Management System were clear	6 (<i>strongly agree</i>)
The welcome screen was visually appealing	5 (<i>agree</i>)
The GENERAL ED PD introduction was clear	6 (<i>strongly agree</i>)
The GENERAL ED PD introduction was concise	6 (<i>strongly agree</i>)
The length of the lessons was adequate for learning the content	5 (<i>agree</i>)
Format	
The font was consistent	6 (<i>strongly agree</i>)
The font was easily read	6 (<i>strongly agree</i>)
The lessons used consistent color	6 (<i>strongly agree</i>)
The punctuation was consistent	5 (<i>agree</i>)
The navigational icons were easy to locate	6 (<i>strongly agree</i>)
Language and Grammar	
Lessons used socially appropriate language	6 (<i>strongly agree</i>)
Lessons avoided culturally biased language	6 (<i>strongly agree</i>)
Technical jargon was explained	6 (<i>strongly agree</i>)
Abbreviations and acronyms were explained	6 (<i>strongly agree</i>)
User Function	
The pace of the lessons was easily managed	5 (<i>agree</i>)
Instructional material was easily reviewed	6 (<i>strongly agree</i>)

How to make a selection on the screen was clear 6 (*strongly agree*)

In general, GENERAL ED-PD online lessons were easily navigated 6 (*strongly agree*)

Performance Feedback

I would recommend GENERAL ED PD online lessons to a colleague. 6 (*strongly agree*)

Ron. Ron completed 19 questions across five topics using a 6-point Likert-type scale (i.e., 1 [*strongly disagree*] to 6 [*strongly agree*]) to assess feasibility of the online asynchronous intervention. Overall scores ranged from 5 (*agree*) to 6 (*strongly agree*) with a mean of 5.61. Refer to Table 9.

Table 9

Ron's Ratings on the Feasibility Evaluation

Topic	Rating
General Design Features	
Directions for using ObaVerse Learning Management System were clear	6 (<i>strongly agree</i>)
The welcome screen was visually appealing	5 (<i>agree</i>)
The GENERAL ED PD Introduction was clear	6 (<i>strongly agree</i>)
The GENERAL ED PD Introduction was concise	6 (<i>strongly agree</i>)
The length of the lessons was adequate for learning the content	5 (<i>agree</i>)
Format	
The font was consistent	6 (<i>strongly agree</i>)
The font was easily read	6 (<i>strongly agree</i>)
The lessons used consistent color	6 (<i>strongly agree</i>)
The punctuation was consistent	6 (<i>strongly agree</i>)
The navigational icons were easy to locate	6 (<i>strongly agree</i>)
Language and Grammar	
Lessons used socially appropriate language	6 (<i>strongly agree</i>)
Lessons avoided culturally biased language	5 (<i>agree</i>)
Technical jargon was explained	5 (<i>agree</i>)
Abbreviations and acronyms were explained	5 (<i>agree</i>)
User Function	
The pace of the lessons was easily managed	6 (<i>strongly agree</i>)
Instructional material was easily reviewed	5 (<i>agree</i>)

How to make a selection on the screen was clear 6 (*strongly agree*)

In general, GENERAL ED-PD online lessons were easily navigated 5 (*agree*)

Performance Feedback

I would recommend GENERAL ED PD online lessons to a colleague. 5 (*agree*)

Social Acceptability

Patrick. Patrick completed the intervention rating scale using a 6-point Likert-type scale (i.e., from 1 [*strongly disagree*] to 6 [*strongly agree*]) that included 17 statements related to social acceptability of the intervention. The statements included social importance of behavior change and social acceptance of the intervention (Cooper et al., 2020). Patrick's scores ranged from 4 (*somewhat agree*) to 6 (*strongly agree*) with a mean of 5.53. Table 10 provides Patrick's detailed responses.

Table 10

Patrick's Ratings on the Intervention Rating Scale

Topic	Rating
This was an acceptable intervention for general education teachers.	5 (<i>agree</i>)
Most general education teachers would find this intervention appropriate for increasing their knowledge of the predictors of postschool success.	5 (<i>agree</i>)
This intervention proved effective in changing in my ability to use the predictors of postschool success in my instruction.	6 (<i>strongly agree</i>)
I would suggest the use of this intervention to other teachers.	4 (<i>somewhat agree</i>)
The need to teach teachers how to prepare students for postschool life was enough to warrant use of this intervention.	6 (<i>strongly agree</i>)
Most teachers would find this intervention suitable for increasing their understanding of the predictors of postschool success.	6 (<i>strongly agree</i>)
I would be willing to use this intervention in a professional development or department meeting with colleagues.	4 (<i>somewhat agree</i>)
I would be willing to use the information learned from this intervention in my classroom.	6 (<i>strongly agree</i>)
This intervention didn't result in negative side effects for me.	6 (<i>strongly agree</i>)
This intervention was appropriate for a variety of general education teachers.	6 (<i>strongly agree</i>)
This intervention was consistent with other professional development experiences.	4 (<i>somewhat agree</i>)

The intervention was a fair way to teach using the predictors of postschool success.	6 (<i>strongly agree</i>)
This intervention was reasonable for increasing knowledge of the predictors of postschool success.	6 (<i>strongly agree</i>)
I like the GENERAL ED procedures used in this intervention.	6 (<i>strongly agree</i>)
This intervention was a good way to engage in professional development to learn about preparing students for adult life.	6 (<i>strongly agree</i>)
Overall, this intervention was beneficial for me as a general education teacher.	6 (<i>strongly agree</i>)
Overall, this intervention will be beneficial for my instruction used to prepare students for adult life.	6 (<i>strongly agree</i>)

Ron. Ron completed the intervention rating scale using a 6-point Likert-type scale (i.e., from 1 [*strongly disagree*] to 6 [*strongly agree*]) for 17 statements. The statements included the social importance of behavior change and social acceptance of the intervention (Cooper et al., 2020). Ron's scores ranged from 4 (*somewhat agree*) to 6 (*strongly agree*) with a mean of 4.94. Refer to Table 11.

Table 11

Ron's Ratings on the Intervention Rating Scale

Topic	Rating
This was an acceptable intervention for general education teachers.	5 (<i>agree</i>)
Most general education teachers would find this intervention appropriate for increasing their knowledge of the predictors of postschool success.	5 (<i>agree</i>)
This intervention proved effective in changing in my ability to use the predictors of postschool success in my instruction.	5 (<i>agree</i>)
I would suggest the use of this intervention to other teachers.	5 (<i>agree</i>)
The need to teach teachers how to prepare students for postschool life was enough to warrant use of this intervention.	5 (<i>agree</i>)
Most teachers would find this intervention suitable for increasing their understanding of the predictors of postschool success.	5 (<i>agree</i>)
I would be willing to use this intervention in a professional development or department meeting with colleagues.	4 (<i>somewhat agree</i>)
I would be willing to use the information learned from this intervention in my classroom.	5 (<i>agree</i>)
This intervention didn't result in negative side effects for me.	6 (<i>strongly agree</i>)
This intervention was appropriate for a variety of general education teachers.	5 (<i>agree</i>)
This intervention was consistent with other professional development experiences.	4 (<i>somewhat agree</i>)

The intervention was a fair way to teach using the predictors of postschool success.	5 (<i>agree</i>)
This intervention was reasonable for increasing knowledge of the predictors of postschool success.	5 (<i>agree</i>)
I like the GENERAL ED procedures used in this intervention.	5 (<i>agree</i>)
This intervention was a good way to engage in professional development to learn about preparing students for adult life.	5 (<i>agree</i>)
Overall, this intervention was beneficial for me as a general education teacher.	5 (<i>agree</i>)
Overall, this intervention will be beneficial for my instruction used to prepare students for adult life.	5 (<i>agree</i>)

CHAPTER 5: DISCUSSION

The purpose of this study was to examine the effects of an asynchronous online intervention (i.e., General Educators Now Embedding Research [for] Adult Life in Educational Design [GENERAL ED]) on two general education teachers' knowledge of research- and evidence-based, in-school predictors of postschool success. A single-case, multiple baseline design across predictors replicated across participants design (Baer et al., 1968; Cooper et al., 2020; Gast & Ledford, 2018) was used to determine the impact of the asynchronous online intervention (i.e., GENERAL ED [independent variable]) on two high school general education teachers' knowledge of three predictors of postschool success (i.e., career technical education, self-care/independent living, self-determination/self-advocacy; Mazzotti et al., 2016, 2021; Test et al., 2009). Results indicated a functional relation between the asynchronous online intervention (i.e., GENERAL ED) and two general education teachers' knowledge of three predictors of postschool success. Participants maintained knowledge of the three predictors for two weeks after completing the final predictor module (i.e., self-determination/self-awareness for Patrick, self-care/independent living for Ron). Additionally, both participants reported increased confidence in knowledge and implementation of the predictors of postschool success. Both participants used the predictors of postschool success and provided access to the predictors of postschool success to their students during instruction. In addition, participants showed potential for generalizing (i.e., setting/situation; Cooper et al., 2020) the predictors of postschool success to instructional content through the use of case studies. Finally, both teachers felt the intervention was socially important and socially acceptable. Here, I present findings and discussion points within this chapter organized by the five research questions. I discuss limitations of the study, suggestions for future research, and implications for practice.

Discussion of Effects of Intervention on the Dependent Variable

Research Question 1: What is the effect of GENERAL ED on general education teachers' knowledge of the predictors of postschool success?

Results indicated a functional relation between this asynchronous online intervention and two general education teachers' knowledge of three predictors of postschool success. Once Patrick and Ron began intervention, both showed an immediate increase in knowledge of the three predictors of postschool success (i.e., career technical education, self-care/independent living, self-determination/self-advocacy). Additionally, data increased over baseline; were fairly stable; changed in the desired direction; and, overall, had minimal variability. This resulted in a functional relation between the asynchronous online intervention (i.e., GENERAL ED) and two general education teachers' knowledge of three predictors of postschool success (i.e., career technical education, self-care/independent living, self-determination/self-advocacy; Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009). Both Patrick and Ron maintained high levels of predictor knowledge, similar to intervention data, after intervention stopped. The following section has been organized into three themes. The themes are (a) general education teachers and transition, (b) implementing the predictors of postschool success, and (c) secondary transition professional development.

General Education Teachers and Transition

General education teachers are legally mandated to prepare all students, including students with high-incidence disabilities, for college and careers (ESSA, 2015; IDEA, 2004). General education teachers were mandated to prepare students for postschool employment through the School-to-Work Opportunities Act of 1994. Three years later, general education teachers were mandated to be IEP team members, including attending IEP team meetings for

transition-aged students with disabilities (IDEA, 1997). General education teachers have reported wanting additional information for preparing students with disabilities for adult life (Kwiatek, 2017), and suggestions have been provided for preparing general education teachers to engage in secondary transition (Wolfe et al., 1998). The scholarly literature, however, appears to lack suggestions for providing professional development to general education teachers on preparing students with high-incidence disabilities for college and careers. The results of this study indicated providing asynchronous online professional development to general education teachers on the predictors of postschool success may be one viable option for engaging them in preparing students with high-incidence disabilities for adult life.

Based on one virtual observation, the predictors of postschool success seem like one feasible option to teach general education teachers about simple and actionable strategies they can implement in their classroom practices. By using the predictors of postschool success, general education teachers can make it more likely students with disabilities are prepared for college and careers (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009). As discussed in the results section, Patrick embedded a career technical education essential characteristic into his instruction (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009). He explained how his content relates to real life and then, provided the opportunity for students to practice solving mathematics problems; communicate with an authority figure (i.e., teacher); and collaborate with each other (Rowe et al., 2015). Although solving systems of equations may not initially be thought of as a particular skillset related to adult life, Patrick related the content to students making purchases at a restaurant or at a grocery store. After providing direct instruction on the process, Patrick asked students to develop their own system of equation problems that can be solved using elimination. Students communicated with peers,

while maintaining social distance, and practiced solving and explaining how to solve their own systems of equations. This highlighted problem-solving, communication, and peer collaboration, which have been identified as an essential characteristic of career technical education (Rowe et al., 2015).

Implementing the Predictors of Postschool Success

Results of this study add to the literature base by highlighting how the predictors of postschool success (Mazzotti et al., 2016, 2020; Test et al., 2009) could be used in a novel way. The predictors of postschool success have been suggested for use in program design and evaluation (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009). Based on findings from this study, it appears that general education teachers may be able to embed predictors of postschool success into daily instruction at the classroom level.

Special education teachers have requested additional support with preparing students for adult life, and “training matters when it comes to implementing transition practices” (Morningstar & Benitez, 2013, p. 58). If general education teachers embed predictors of postschool success into instruction based on student strengths, preferences, interests, and needs, general education teachers may be able to use the predictors to provide transition services to all students that are correlated with improved postschool success (IDEA, 2004; Mazzotti et al., 2016, 2021; Test et al., 2009). Providing this training to general education teachers may be one step toward supporting all students in general education. Because students with high-incidence disabilities spend the majority of their day in general education settings (80% or more; NCES, 2017b), providing training to these teachers is important to ensure all students are prepared for college and careers (ESSA, 2015; IDEA, 2004).

Given the multiple frameworks originally developed for college and career readiness (Borsato et al., 2013; Conley 2007, 2008) and more recent efforts focused on including students with disabilities in college and career readiness frameworks (e.g., Monahan et al., 2020; Morningstar et al., 2017, 2018), it is clear preparing students with high-incidence disabilities for college and careers is a relevant and pervasive concern needing to be addressed. One specific need appears to be operationalizing college and career readiness for students with high-incidence disabilities (Morningstar et al., 2017). Aligning secondary transition efforts with general education initiatives and reforms (e.g., college and career readiness, Response-to-Intervention) has been suggested in the literature (Lombardi et al., 2018; Morningstar et al., 2012); however, there seems to be an ongoing need to determine how to bridge general education initiatives and reforms (e.g., college and career readiness) with secondary transition efforts (Lombardi et al., 2018). Given the effectiveness of this intervention, using GENERAL ED to teach general education teachers to implement the predictors of postschool success seems like one possible way to potentially bridge the gap between college and career readiness and secondary transition.

Secondary Transition Professional Development

In secondary transition, there is limited research around high-quality professional development. Of the professional development identified in secondary transition, none included single-case research. The majority of secondary transition professional development research focused on group experimental research (e.g., Flannery et al., 2015; Kim & Morningstar, 2007); however, this research also is limited. Single-case research may be an answer for researchers who do not have the capacity to conduct high-quality group experimental studies but would like to engage in high-quality professional development. This study provides evidence that single-

case research can be used in secondary transition to provide high-quality professional development.

Secondary transition professional development has been delivered face-to-face (e.g., Flannery et al., 2015) and online (e.g., Kim & Morningstar, 2007). Also, previous secondary transition professional development research has focused on the use of surveys (e.g., Morningstar & Benitez, 2013; Morningstar, Hirano, et al., 2018) and group experimental designs (e.g., Flannery et al., 2015; Kim & Morningstar, 2007). Other than Kim and Morningstar (2007), there appears to be a dearth of secondary transition research maximizing the use of asynchronous online modules for professional development. Although 14 years after Kim and Morningstar's intervention, asynchronous online professional development appears relevant today. Specific to this asynchronous intervention, by sharing multiple examples from teachers who have implemented the predictors of postschool success, it was intended that learners could help relate the intervention content to their immediate teacher responsibilities, another effective strategy for adult learning (Gregson & Sturko, 2007). Also, this intervention was self-led, which promotes learner autonomy, an effective component of adult learning that should be considered for professional development (Gregson & Sturko, 2007). Given the current focus on online instruction, this type of professional development seems ideal for providing flexibility of choice for when and where general education teachers choose to access content. Considering the COVID-19 pandemic, this method of professional development could be used to provide high-quality professional development and abide by current health and safety guidelines.

Additionally, the participants in this study taught two different content areas (i.e., mathematics, Spanish). Given the effectiveness of this intervention to prepare these two general education teachers to implement the predictors of postschool success, it seems possible this

intervention could be used for teachers across content areas. Furthermore, this intervention may be potentially appropriate for both high school core (i.e., mathematics) and elective (i.e., Spanish) courses. By providing professional development to general educators who teach in multiple content areas, it is important to examine which predictors align best with a specific content area to ensure clear responsibilities and expectations are provided (Kohler & Field, 2003) to deliver collaborative transition service delivery (Test et al., 2006; Trainor et al., 2020).

Discussion of Findings based on Secondary Measures

Research Question 2: To what extent will GENERAL ED increase general education teachers' confidence in knowledge and implementation of the predictors of postschool success?

Research Question 3: To what extent will GENERAL ED increase general education teacher use and student access to the predictors of postschool success during instruction?

Participant Confidence in Knowledge and Implementation of the Predictors

Patrick reported gains in confidence in knowledge and implementation of the use of the predictors of postschool success from 3 (*somewhat confident*) pre intervention to 5 (*very confident*) post intervention. Ron also reported gains in confidence in knowledge and implementation of the predictors of postschool success from 0 (i.e., *not confident*) before intervention to 3 (*somewhat confident*) or 4 (*confident*) post intervention. Preliminary results suggest this intervention has potential in supporting general education teachers with developing their confidence in knowledge and implementation of the predictors of postschool success (Mazzotti et al., 2016, 2021; Test et al., 2009).

Considering students with high-incidence disabilities have experienced less successful in-school (e.g., Lipscomb et al., 2018a, 2018b) and postschool outcomes (e.g., Blackorby &

Wagner, 1996; National Council on Disability, 2014; NCES, 2017a; Newman et al., 2011), it is important to consider strategies to improve in-school college and career preparation efforts.

Because the majority of students with high-incidence disabilities spend at least part of their day in general education settings (NCES, 2017), general education teacher confidence in their knowledge and implementation of the predictors may be important. Preliminary results of this dissertation suggest this intervention could potentially be used to help other general education teachers increase their confidence in their knowledge and implementation of the predictors of postschool success to prepare students for college and careers (ESSA, 2015; IDEA, 2004; Mazzotti et al., 2016, 2020; Test et al., 2009).

To ensure effective preparation for students with high-incidence disabilities for adult life, special education and general education teachers can work collaboratively for service delivery and ensure student needs are met by outlining defined roles and responsibilities related to college and career readiness (Kohler & Field, 2003; Test et al., 2009; Trainor et al., 2020). General education teachers can engage in preparing students for college and careers through the use of the predictors of postschool success. If general education teachers feel confident in their knowledge and ability to implement the predictors of postschool success, this could potentially address the needs of special education teachers with supporting students for college and careers (Morningstar & Benitez, 2013). Because a team-approach has been identified as an effective way to prepare students with high-incidence for adult life (Test et al., 2006; Trainor et al., 2020), general education and special education teachers should combine efforts to prepare students with high-incidence disabilities for postschool life.

Teacher Use and Student Access of the Predictors

Kwiatek et al. (2021) found general educators identified the predictors of postschool success were relevant, important, and feasible to implement. Based on one observation of each participant, Patrick and Ron were able to implement the predictors of postschool success in their instruction. More specifically, Patrick taught solving systems of equations with elimination. This is quite literally a problem-solving approach to determining the value of two unknown variables. Problem-solving is a skillset that has been suggested in the college and career readiness literature (e.g., Conley 2007, 2008; Morningstar et al., 2017). This particular activity aligned with a career technical education essential characteristic focused on providing instruction in soft skills and occupational skills (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009). This example appears to highlight how the predictors of postschool success could bridge secondary transition and college and career readiness efforts. With ongoing access to career technical education, students with high-incidence disabilities will be more likely to experience improved education/training and employment outcomes (i.e., college, careers). Lastly, results of this study appear to confirm Kwiatek et al.'s findings the predictors are feasible to implement within teacher instruction.

Discussions of Findings Based on Potential Generalization

Research Question 4: To what extent will GENERAL ED promote possible generalization of the predictors of postschool success to the classroom setting?

Potential Generalization Results of Case Studies

Based on results from pre- and post-intervention generalization probes, both participants' scores increased in terms of describing how to embed the predictors of postschool success into instruction (i.e., setting/situation generalization). Through the use of case studies, Patrick and

Ron articulated the name of three predictors, relevant essential characteristics, and examples of embedding the predictors within their course instruction. Although not definitive, these preliminary findings suggest this intervention may promote possible generalization of using the predictors of postschool success in classroom content. One potential explanation for this is because the intervention was designed with the intent of promoting potential generalization (Stokes & Baer, 1977). Teaching multiple exemplars is one method for promoting generalization (Stokes & Baer, 1977). Each participant watched five screencasts for each of the three predictors of postschool success (i.e., career technical education, self-care/independent living, self-determination/self-awareness). Each GENERAL ED screencast contained two essential characteristics, and each essential characteristic contained at least two examples of implementing the essential characteristic in instruction (i.e., a minimum of four examples of implementing each essential characteristic); therefore, each participant learned a minimum of 20 examples of implementing essential characteristics for each of the three predictors of postschool success. In total, GENERAL ED instruction consisted of over 60 different examples of using the predictors of postschool success (Mazzotti et al., 2016; 2021, Test et al., 2009) essential characteristics (Rowe et al., 2015) being embedded into instruction.

Discussions Based on Social Validity

Research Question 5: What are general education teachers' perceptions of the social acceptability and feasibility of the GENERAL ED intervention?

Patrick and Ron completed two social validity measures. One social validity measure was a feasibility evaluation, and the second social validity measure was an intervention rating scale to assess the social importance and social significance of the intervention (Cooper et al., 2020). On every item of the feasibility evaluation, Patrick and Ron rated each item either (a) *5 agree* or (b)

6 *strongly agree*, suggesting the intervention was feasible and well designed. In general, the features, format, language and grammar, user function, and performance feedback were highly rated. Patrick's rating of "I would recommend GENERAL ED PD online lessons to a colleague" as 6 (*strongly agree*) or Ron's rating of 5 (*agree*) suggests the overall feasibility of the intervention was effective at promoting adult learning (e.g., self-led intervention to promote autonomy [Gregson & Sturko, 2007]). Along with highlighting the feasibility of the intervention, Patrick and Ron also highly rated all items on the intervention rating scale with responses ranging from 4 (*somewhat agree*) to 6 (*strongly agree*) and the majority of responses being 6 (*strongly agree*) for Patrick and 5 (*agree*) for Ron. Patrick and Ron concurred the intervention was relevant to their instruction, which aligns with suggestions for high-quality professional development and adult learning (e.g., relating content to learner knowledge and responsibilities [Gregson & Sturko, 2007; Holzberg et al., 2018]). Additionally, Patrick and Ron rated the following items as 5 (*agree*) or 6 (*strongly agree*): (a) the intervention was beneficial for them as general education teachers, (b) the intervention was a good way to engage in professional development to prepare students for adult life, and (c) the intervention was appropriate for a variety of general education teachers. These ratings further suggest this professional development was aligned with best practice for adult learning and professional development (e.g., Gregson & Sturko, 2007; Holzberg et al., 2018).

Limitations and Suggestions for Future Research

This study contains several limitations and suggestions for future research. First, my single-case multiple baseline across predictors, replicated across participants design allowed me to study the effectiveness of this asynchronous online intervention (i.e., GENERAL ED) on two general education teacher participants' knowledge of three predictors of postschool success (i.e.,

career technical education, self-care/independent living, self-determination/self-awareness; Mazzotti et al., 2016, 2021; Test et al., 2009). Single-case research has strong internal validity (i.e., functional relation between independent and dependent variables), documented through (a) repeated control of the independent variable to affect the dependent variable and (b) controlling for common threats to internal validity (Cooper et al., 2020). However, with only two participants, it is difficult to assess external validity (i.e., generality of results). To increase external validity, there is a need for replication. Replication can be described as repeating previous experiments (Cooper et al., 2020). Direct replication occurs when a researcher attempts to replicate an experiment as previously implemented (Cooper et al., 2020). More specifically, because this intervention was designed and delivered online, researchers could use this OBA course to deliver the exact same intervention to new general education teachers who meet similar descriptions to participants from this study (i.e., intersubject direct replication; Cooper et al., 2020)

Second, in addition to direct replications, researchers could conduct systematic replications of this study. While a direct replication occurs when a researcher replicates an experiment as previously implemented, systematic replications allow for more flexibility in how a study is replicated (Cooper et al., 2020). In addition to validating previous findings, successful systematic replications allow for additional external validity, highlighting the effectiveness of the intervention to produce a similar effect under different conditions (Cooper et al., 2020). Systematic replications occur when certain aspects of a previously conducted experiment are altered to determine if similar results occur with replication (Cooper et al., 2020). A systematic replication of this study might include replicating GENERAL ED with general education teachers who teach different content areas. For example, instead of a mathematics and Spanish, a

systematic replication may include English, science, or music teachers. Another way to replicate this study would be to keep participants the same and switch the predictors used; however, everything else would remain consistent. Instead of using career technical education, self-care/independent living, and self-determination/self-awareness, future research could replicate this study using the other 20 predictors of postschool success (Mazzotti et al., 2016, 2020; Test et al., 2009). Also, researchers could replicate this study using a different design. Instead of using a single-case multiple baseline across predictors, replicated across participants design, future research might focus on using a multiple probe across participants design with a focus on one predictor. Finally, future researchers can extend generality of results by using group design research. If replication of GENERAL ED using a large group design were effective, the generality of results may increase. As noted by Travers et al. (2016), the identification of special education evidence-based practices depends upon the replication of experimental research. More specifically, “it is clear that an evidence-based special education is contingent on the availability of high-quality empirical research” (Travers et al., 2016, p. 202). In fact, replication is so important in special education research, quality indicators for single-case research are contingent upon including enough information to replicate the research (Horner et al., 2005). Ultimately, through multiple replications of GENERAL ED, an evidence base could be developed to utilize asynchronous online instruction to teach general education teachers about the predictors of postschool success.

Third, this study did not include long-term maintenance data collection. It is not certain if the participants will maintain their knowledge for an extended period of time after intervention. To address this limitation, future research should consider collecting maintenance data over a longer period of time (e.g., 3 months, 6 months). As noted by Mazzotti et al. (2013),

experimental research is implemented for a limited amount of time, and only some maintenance data are collected; however, intervention research should examine long-term impacts of the intervention, which can be assessed with maintenance data (Mazzotti et al., 2013). To prepare students with disabilities for postschool success, it is critical to examine long-term effects of intervention research and evidence-based practices on students with disabilities' postschool outcomes (Mazzotti et al., 2013).

Fourth, this study examined potential generalization pre- and post-intervention; however, this study could be implemented to examine generalization throughout the intervention. As Stokes and Baer (1977) noted, generalization is “the occurrence of relevant behavior under different, non-training conditions (i.e., across subjects, settings, people, behaviors, and/or time) without the scheduling of the same events in those condition” (p. 350). When replicating this study in the future, the same generalization case study used could be measured as a dependent variable. More specifically, this study could be replicated by asking participants to (a) watch a predictor screencast, (b) complete a predictor knowledge probe, and (c) complete the generalization case study. This type of generalization is known as setting/situation and occurs when a learner provides a response in a setting or stimulus that differs from the instructional setting (Cooper et al., 2020). Cursory data also suggest setting/situation generalization may have occurred as a result of this intervention. Setting/situation generalization occurs when a person exhibits the target behavior in a setting or with stimuli that are different than instructed (Cooper et al., 2020). This study conducted one observation of participants' ability to embed the predictors of postschool success into their instruction. Future research could examine the extent to which setting/situation generalization occurs after completing each GENERAL ED screencast. Examining setting/situation generalization as a dependent variable would allow claims of

generalization to be documented through experimental control of the intervention. Having an ongoing assessment before, during, and after intervention would provide opportunity to formally assess if – and what type of - generalization may occur as part of this intervention.

Fifth, the use of the Tau-*U* effect size measure could be considered a potential limitation. When single-case research includes between-group analyses effect size, recommended methods should include between group methods (Shadish et al., 2015); however, as Rowe et al. (2021) noted, the use of Tau-*U*, a within-case measure of effect size, has its advantages over other effect sizes (e.g., Hedges *g*). Shadish et al. (2015) noted between three to five data points can be used to assess effect sizes per phase, but five data points are preferred. In this study, both participants had fewer than five points during the first predictor baseline. Additionally, stability of data can affect the use of between-case effect size measures (Shadish et al., 2015). Considering variability of one participant's data, this appeared to be an important consideration. Coupling concerns related to variability in participant data and the less than recommended five data points per all phases, Tau-*U* procedures were used to assess the effect size of the intervention and to separately draw conclusions about each case (Shadish et al., 2015). In the future, researchers should allow visual analysis to guide the use of which effect size measures are used to examine and report visual analysis (Parker & Vannest, 2012).

Sixth, another potential limitation is the focus of this intervention on general education teacher knowledge. Considering general education teacher involvement is lacking from the secondary transition literature, knowledge is a logical first step to support general education teachers in preparing students with disabilities for college and careers. Knowledge of a practice does not, however, equate to implementation of that knowledge. Cursory data suggest this intervention may have provided one participant with skills necessary to implement the predictors

of postschool success within instruction; however, there were no preassessment data for comparison. Additionally, a second participant was not observed for this study because he was unable to obtain administrative approval for an observation. To address these limitations, future research should focus on teaching general education teachers to apply knowledge of the predictors of postschool success in practice, thereby, providing student access to the predictors of postschool success and making it more likely these students would experience postschool success (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009).

Seventh, the intervention was effective for increasing knowledge of the predictors of postschool success for one high school general education mathematics teacher and one high school Spanish teacher. Future research may consider tailoring the examples provided within the intervention to a specific content area (e.g., all mathematics examples, all Spanish examples). Given that Morningstar et al. (2017) identified six domains of college and career readiness, it is important to examine how the predictors may be used to address these six domains. The six domains included academic engagement, academic mind-sets, learning processes, critical thinking, social skills, and transition knowledge (Morningstar et al., 2017). Of the six domains identified by Morningstar et al., within this intervention, few examples of academic engagement (e.g., cognitive and content knowledge) were specific to a content area. Providing additional examples specific to content knowledge may be helpful to address suggestions of designing professional development that aligns with teacher knowledge and beliefs (Holzberg et al., 2018). Using the predictors to design an asynchronous online intervention to provide a concerted focus on grade-level academic content could address multiple suggestions of college and/or career readiness focus on academic content knowledge and skills (Borsato et al., 2013; Conley 2007,

2008; Lombardi et al., 2018; Milson & Dietz, 2009; Morningstar et al., 2017; Nagaoka et al., 2014).

Eighth, because special educators have reported not being trained during pre-service programs or having access to high-quality in-service training to provide effective transition practices (Mazzotti & Plotner, 2016), providing high-quality transition professional development based on educator knowledge and beliefs, coupled with active learning opportunities, would potentially benefit special education teachers (Holzberg et al., 2018). Although this intervention was designed and found to be effective for two general education teachers, delivering asynchronous online professional development to general and special education teachers about using the predictors of postschool success could be utilized to provide in-service training to address professional development needs identified by Mazzotti and Plotner (2016). Special education teachers may benefit from learning about utilizing the predictors of postschool success (Mazzotti et al., 2016, 2021; Test et al., 2009) for instruction and transition activities to prepare students with high-incidence disabilities for college and careers (ESSA, 2015; IDEA, 2004). If secondary transition professional development were provided to both special and general education teachers, there would be potential for colleagues to (a) ask follow-up questions, (b) engage in meaningful conversations with colleagues, and (c) receive feedback (Flannery et al., 2015), along with team-based participation among educators, active learning opportunities, and potential for sustained professional development with feedback and coaching (Holzberg et al., 2018).

Ninth, the use of this asynchronous online intervention presents new challenges for providing secondary transition professional development. For example, participants were only allowed to watch each screencast once and complete each probe once; however, they were

responsible for starting the video and continuing the intervention. Given participant autonomy to access intervention at a time and location of their choice, the participants had accessed the content at a variety of different times for different lengths of time. The data automatically tracked by OBA documents how long a participant was on a particular task (e.g., page with the screencast, page with the probe) of the online learning management system. Although each lesson was similar in design, video length, and contained the exact same probe questions, Patrick and Ron had wide variability in how long they completed a particular task. Future research may consider partnering with web developers or website designers to improve the quality of data tracking capabilities to provide a better examination of participant access to the intervention.

Next, one participant appeared to use the internet to locate answers during the first baseline probe. This is problematic in single-case research because baseline logic is used to determine the need for intervention (Cooper et al., 2020). Per single-case design, to determine if a participant required intervention, they would need to exhibit low levels of knowledge in baseline. If a participant had a high level of knowledge in baseline, the participant may appear to not need intervention. After the first probe, I noticed the participant's responses were verbatim from the Predictor Implementation School/District Self-Assessment (PISA; NTACTION, 2019). This first data point suggested the participant had higher knowledge than they actually may have, and ongoing data with high levels of knowledge could have been used as rationale to exclude him from the study. If replicated in the future, it is possible additional participants may also find the PISA (NTACTION, 2019) on the internet and appear to have inflated knowledge of the predictors of postschool success. In response to this occurrence, I emailed the participant and requested he use only his knowledge to answer questions and reassured the participant that he would learn all answers to the questions to the probes throughout the intervention. After this, the responses were

no longer written using phrases from the PISA, and, thus, his scores decreased and eventually became stable during baseline. Even with explicit instructions in GENERAL ED for participants to use their own knowledge, one participant still used the internet to find answers to probes. This is an opportunity for future researchers to consider being more explicit with directions and maximize the use of effective strategies for adult learning (e.g., additional frontloaded expectations, behavior contracts; Svinicki & McKeachie, 2014). Also, ObaVerse, along with other online learning management systems, include tools (e.g., lockdown browsers) to help mitigate the use of outside resources when no one is proctoring online assessments (Cluskey et al., 2011).

Finally, the intervention was designed so participants could skip questions to help mitigate potential testing fatigue. Looking at Ron's maintenance data for the dependent variable, his maintenance data were higher than his intervention scores. Results indicated a functional relation between the intervention and participant knowledge of three predictors of postschool success, but the participant did skip answers until the maintenance data sessions. His results for maintenance probes perhaps identify a more accurate depiction of the participants' knowledge than the lower level of knowledge during intervention. When replicating this study, future researchers should examine if participants choose to skip questions or if they answer all questions. Ultimately, researchers will need to decide if the benefits of forcing participant responses outweigh the flexibility of allowing participants to skip questions.

Implications for Practice

Several implications for practice have been identified based on results of this study. Implications for practice have been organized in the following themes: (a) collaboration, (b) pre-

service and in-service training, and (c) implementation of predictors to potentially improve postschool outcomes for students with high-incidence disabilities.

Collaboration

Given special education teachers have requested additional support preparing students with disabilities for adult life (Morningstar & Benitez, 2013), this seems like an ideal opportunity to engage general and special education teachers in collaborative efforts to promote positive in-school experiences correlated with positive postschool outcomes for all students, including students with high-incidence disabilities. Partnerships are critical in preparing students for adult life (Test et al., 2006; Trainor et al., 2020). Because general education and special education teachers have identified predictors as relevant, important, and feasible for implementation within professional responsibilities (Kwiatek et al., 2021), the predictors of postschool success seem like an ideal way to teach education professionals about designing instruction focused on preparing students for college and careers. This study focused on three predictors of postschool success most highly rated by general education teachers (Kwiatek et al., 2021). Given the findings of this study, it may be logical for general and special educators to work collaboratively (Test et al., 2006; Trainor et al., 2020) and determine which predictors can be addressed within their respective instruction. Based on results from this study, potentially mathematics or Spanish teachers could embed career technical education, self-care/independent living, and self-determination/self-advocacy predictors into their instruction. Although these three predictors are correlated with improved student outcomes, there are another 20 predictors of postschool success for quality transition programming (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009). If a high school student has seven teachers throughout the day, the mathematics or Spanish teacher may focus on implementing career technical education, self-care/independent

living, or self-determination/self-awareness. The student's other six teachers could focus on implementing different predictors of postschool success to ensure the student has access to as many predictors of postschool success as possible (Mazzotti et al., 2016, 2021; Test et al., 2009).

Pre-Service and In-Service Training

The predictors of postschool success were originally identified over a decade ago (Test et al., 2009). The predictors of postschool success identified by Test et al. (2009) have been operationalized with essential characteristics (Rowe et al., 2015). Since 2009, new predictors have been identified and pre-existing predictors have been updated with additional evidence (Mazzotti et al., 2016, 2021). This identification of the predictors of postschool success in the scholarly literature suggests that there is the ability to focus on the predictors of postschool success in pre-service and in-service programs. Given legal mandates to prepare students for college and careers (ESSA, 2015; IDEA, 2004), special and general education teachers should have opportunities to learn about the predictors of postschool success during pre-service and in-service training. Given licensure programs often provide little or no instruction on secondary transition, the need for secondary transition professional development is crucial to support transition professionals with the skills and knowledge needed at the state, district, and school levels (Williams-Diehm et al., 2018). When implementing professional development, states and districts often provide professional development on maintaining compliance and keeping districts out of due process litigation (Flannery et al., 2015). The problem, however, may not be a lack of understanding of compliance requirements, but rather teachers may have hesitance to document transition services in IEPs they feel incapable of delivering (Flannery et al., 2015). GENERAL ED appears to be a viable professional development option to increase teacher confidence and knowledge of the predictors of postschool success for teachers that goes beyond compliance.

Focusing on the predictors of postschool success is one option to address Flannery et al.'s suggestion of bridging the gap between providing high-quality transition services and the role of the IEP in preparing students for adult life.

Along with participant flexibility, this asynchronous online intervention allowed the participants in two states in different parts of the country (i.e., one Southeast state, one Midwest state) to receive secondary transition professional development. Online secondary transition professional development is not novel in secondary transition (Holzberg et al., 2018; Kim & Morningstar, 2007). In fact, a suggestion for providing online professional development was recommended as an effective method for preparing special educators with knowledge related to secondary transition 14 years ago (Kim & Morningstar, 2007). This study highlighted how teachers can engage in a “professional development strategy that matches the specific needs of the participants” (Kim & Morningstar, 2007, p. 125). Considering the current focus on online learning during in-service and pre-service training, this intervention appears to meet the needs of these two participants by allowing flexibility on when and where participants accessed the intervention.

Potentially, contributing to the effectiveness of this intervention were suggestions posed for high-quality secondary transition professional development (Holzberg et al., 2018), including aligning content with educator knowledge and beliefs and active learning opportunities. In addition, considerations were taken in the design of this intervention to address components necessary for adult learning (Gregson & Sturko, 2007). As part of the intervention to help general educators align the intervention with their educator knowledge and beliefs, multiple general education teachers and I shared multiple examples of using the predictors to prepare students for adult life. To promote active learning opportunities (Holzberg et al., 2018), quick

check self-assessments were embedded within the screencasts to foster learning and allow an active response to review content prior to taking the probe to document learning.

Focusing professional development efforts on the predictors of postschool success is one potential option to address the need of preparing all students, including students with disabilities to be ready for college (Mazzotti et al., 2016, 2021; Test et al., 2009). Mazzotti et al. (2021) noted districts may consider focusing professional development efforts on the predictors of postschool success because they have high-quality evidence supporting their use and are correlated to improved postschool outcomes. Along with alignment of knowledge, professional development should also incorporate active learning opportunities, coaching and feedback, and a team-based approach (Holzberg et al., 2018), additional professional development considerations include participating in practice in a school environment, and engaging with colleagues (Flannery et al., 2015). After learning about the predictors of postschool success, professional development should focus on allowing educators to work collaboratively (e.g., Flannery et al., 2015; Holzberg et al., 2018; Test et al., 2009; Trainor et al., 2020) to implement the predictors of postschool success; receive ongoing feedback and support with implementation (e.g., Flannery et al., 2015; Holzberg et al., 2018); receive professional development focused on teacher-specific needs (Kim & Morningstar, 2007). This concerted effort would make it more likely students with high-incidence disabilities are better prepared for college and careers (Mazzotti et al., 2016, 2021; Rowe et al., 2015; Test et al., 2009).

Within this study, it also appeared one general education teacher used the internet to identify resources on the predictors of postschool success for one baseline assessment. On a practical level, this may speak to general education teachers' desire to learn strategies to prepare students for adult life. This could potentially reaffirm findings that general education teachers

want to learn how to prepare students with high-incidence disabilities for adult life (Kwiatek, 2017), and the predictors of postschool success may, in fact, be a viable option (Kwiatek et al., 2021).

Implementation of Predictors to Potentially Improve Postschool Outcomes

Although the predictors of postschool success have their own inherent limitations with being derived from correlational research (e.g., correlational research does not providing causal evidence; Mazzotti et al., 2016, 2021; Test et al., 2009 and operationalized essential characteristics (e.g., essential characteristics were operationalized using a specific group of professionals; Rowe et al., 2015), the predictors of postschool success can guide practitioners with providing support and instruction to promote positive in-school experiences correlated with postschool outcomes for students with high-incidence disabilities (Mazzotti et al., 2016, 2021; Test et al., 2009). Also, the predictors of postschool success have been suggested for use in in-service professional development and to support practitioners with implementing the predictors in authentic contexts (Mazzotti et al., 2021). Further suggested, the predictors of postschool success can ensure districts dedicate resources (e.g., time, money) to make it more likely students with high-incidence disabilities experience positive outcomes (Mazzotti et al., 2021). GENERAL ED could be used by schools and/or districts to teach general education teachers to receive professional development on the predictors of postschool success.

Special education teachers have reported needing additional training and support in delivering transition services (Mazzotti & Plotner, 2016; Morningstar & Benitez, 2014). Taking a collaborative team approach to providing transition services is effective for ensuring students with high-incidence disabilities are prepared for college and careers (ESSA, 2015; IDEA, 2004; Test et al., 2006; Trainor et al., 2020) Results of this study offer potential evidence to suggest

special education teachers may be able to look to their general education colleagues for support in preparing students with high-incidence disabilities for adult life. Schools and districts should consider using GENERAL ED to teach special and general education teachers to implement the predictors of postschool success through a team-based approach to meet the needs of special education teachers to prepare students for adult life (ESSA, 2015; IDEA, 2004; Mazzotti & Plotner, 2016; Morningstar & Benitez, 2013; Test et al., 2006; Trainor et al., 2020).

Conclusion

Perhaps, Halpern (1992) explained it best: “Like old wine in new bottles, these issues have been addressed with varying levels of success by each new approach that has emerged to attack old issues” (p. 203). Given the long history of students with high-incidence disabilities experiencing poor postschool outcomes (e.g., Blackorby & Wagner, 1996; Newman et al., 2011), federal legislation has evolved to prepare students with and without disabilities for college and careers (ESSA, 2015; IDEA, 2004). Originally, students with disabilities were not considered within college and career readiness efforts (e.g., Conley 2007, 2008); however, more recent efforts have included students with disabilities as a focus of college and career readiness (e.g., Morningstar et al., 2017). Predictors of postschool success seem feasible for bridging both secondary transition and college and career readiness efforts. General education teachers have reported wanting additional knowledge on preparing students with high-incidence disabilities for college and careers (Kwiatek, 2017). General education teachers have identified the predictors of postschool success as relevant, important, and feasible to implement (Kwiatek et al., 2021), and the predictors of postschool success appear to be an ideal option for combining secondary transition and college and career readiness efforts. Given these considerations, this study examined the effects of an asynchronous online intervention (i.e., General Educators Now

Embedding Research [for] Adult Life in Educational Design [GENERAL ED]) on general education teacher knowledge of research- and evidence-based, in-school predictors of postschool success. Results indicated a functional relation between the asynchronous online intervention and increased general education teacher knowledge of three predictors of postschool success (i.e., career technical education, self-care/independent living, self-determination/self-awareness). The intervention appeared to promote general education teacher application; confidence; generalization; and social validity (i.e., feasibility evaluation, intervention rating scale). Although the predictors of postschool success may not yet be taught to pre-service or in-service general education teachers, it is likely some essential characteristics (e.g., guest speakers, parent/family collaboration, social skill instruction, course content relevance to adult life; Rowe et al., 2015) are not new to general education teachers. General education teachers may not use the terminology *predictors of postschool success* or *essential characteristics* (Mazzotti et al., 2016, 2021; Rowe et al., 2015), but the predictors of postschool success likely align with general education teacher knowledge and beliefs (Holzberg et al., 2018). Although concepts related to implementing the predictors of postschool success may not be novel to practicing teachers, this study's approach may be novel, to some extent, in the scholarly literature. By teaching general education teachers to use the predictors of postschool in their instruction, general education teachers may help address the ongoing and urgent problem of students with high-incidence disabilities needing additional in-school preparation for postschool life.

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APPENDIX A: PREDICTOR KNOWLEDGE PROBE SCORING GUIDELINES

Participant:	Predictor:	Module:	
Scorer:	Phase:	IRR: Yes No	
Career Technical Education	0 points	1 point	2 points
Definition: PREPARES students for a SPECIFIC JOB or CAREER at various levels from trade or craft positions to technical, business, or professional careers.	Not answered or included zero key words	Answered and included 1-2 key words	Answered and included 3 or more key words
IDEA-Required outcome area for predictor: Education/Training Employment	Incorrect or not answered	Correctly identified 1 outcome area or used synonyms (e.g., work instead of employment) for one of the outcome areas OR Lists all 3 outcome areas	Correctly identified education/training and employment
First essential characteristic	Essential characteristic identified is not related to an education predictor, is not an essential characteristic, or was not answered.	Essential characteristic identified is an essential characteristic for a different predictor or includes 1-2 words from essential characteristic	Essential characteristic identified is correct and relates to the predictor; response includes 3 words from essential characteristic
Example of implementing the essential characteristic	The answer is incorrect or not answered.	Essential characteristic is an example but is not	Essential characteristic example is relevant to the

		related to this specific essential characteristic	identified essential characteristic
Second essential characteristic	Essential characteristic identified is not related to an education predictor, is not an essential characteristic, or was not answered.	Essential characteristic identified is an essential characteristic for a different predictor or includes 1-2 words from essential characteristic	Essential characteristic identified is correct and relates to the predictor; response includes 3 words from essential characteristic
Example of implementing the essential characteristic	The answer is incorrect or not answered.	Essential characteristic is an example but is not related to this specific essential characteristic	Essential characteristic example is relevant to the identified essential characteristic
_____ / 12 possible points			
Self-Care/Independent Living Skills	0 points	1 point	2 points
Definition: SKILLS necessary for MANAGEMENT of one's personal SELF-CARE and daily INDEPENDENT LIVING , including the personal management skills needed to interact with others, daily living skills, financial management skills, and the self-management of healthcare/wellness needs.	Not answered or included zero key words	Answered and included 1-2 key words	Answered and included 3 or more key words
IDEA-Required outcome area for predictor: Education/Training Employment Independent Living	Incorrect or not answered	Correctly identified 1-2 outcome areas or used synonyms (e.g., work instead of employment) for one of the outcome areas	Correctly identified education/training, employment, and independent living

First essential characteristic	Essential characteristic identified is not related to an education predictor, is not an essential characteristic, or was not answered.	Essential characteristic identified is an essential characteristic for a different predictor or includes 1-2 words from essential characteristic	Essential characteristic identified is correct and relates to the predictor; response includes 3 words from essential characteristic
Example of implementing the essential characteristic	The answer is incorrect or not answered.	Essential characteristic is an example but is not related to this specific essential characteristic	Essential characteristic example is relevant to the identified essential characteristic
Second essential characteristic	Essential characteristic identified is not related to an education predictor, is not an essential characteristic, or was not answered.	Essential characteristic identified is an essential characteristic for a different predictor or includes 1-2 words from essential characteristic	Essential characteristic identified is correct and relates to the predictor; response includes 3 words from essential characteristic
Example of implementing the essential characteristic	The answer is incorrect or not answered.	Essential characteristic is an example but is not related to this specific essential characteristic	Essential characteristic example is relevant to the identified essential characteristic
_____ / 12 possible points			
Self-Determination/ Self-Advocacy	0 points	1 point	2 points
Definition: The ability to make choices, SOLVE PROBLEMS , set goals, evaluate options, TAKE INITIATIVE to reach one's goals, and ACCEPT	Not answered or included zero key words	Answered and included 1-2 key words	Answered and included 3 or more key words

CONSEQUENCES of one's actions.			
IDEA-Required outcome area for predictor: Education/Training Employment Independent Living	Incorrect or not answered	Correctly identified 1-2 outcome areas or used synonyms (e.g., work instead of employment) for one of the outcome areas	Correctly identified education/training, employment, and independent living
First essential characteristic	Essential characteristic identified is not related to an education predictor, is not an essential characteristic, or was not answered.	Essential characteristic identified is an essential characteristic for a different predictor or includes 1-2 words from essential characteristic	Essential characteristic identified is correct and relates to the predictor; response includes 3 words from essential characteristic
Example of implementing the essential characteristic	The answer is incorrect or not answered.	Essential characteristic is an example but is not related to this specific essential characteristic	Essential characteristic example is relevant to the identified essential characteristic
Second essential characteristic	Essential characteristic identified is not related to an education predictor, is not an essential characteristic, or was not answered.	Essential characteristic identified is an essential characteristic for a different predictor or includes 1-2 words from essential characteristic	Essential characteristic identified is correct and relates to the predictor; response includes 3 words from essential characteristic
Example of implementing the essential characteristic	The answer is incorrect or not answered.	Essential characteristic is an example but is not related to this specific essential characteristic	Essential characteristic example is relevant to the identified essential characteristic
_____/ 12 possible points			

APPENDIX B: SECONDARY MEASURE: CONFIDENCE IN KNOWLEDGE AND
IMPLEMENTATION QUESTIONNAIRE

Criteria	1 Not Confident	2 Slightly Confident	3 Somewhat Confident	4 Confident	5 Very Confident
How confident are you, as a general education teacher, in your knowledge of self-determination/self-advocacy?					
How confident are you, as a general education teacher, in your implementation of self-determination/self-advocacy?					
How confident are you, as a general education teacher, in your knowledge of postsecondary predictors for self-care/independent living skills?					
How confident are you, as a general education teacher, in your implementation of self-care/independent living skills?					
How confident are you, as a general education teacher, in your knowledge of postsecondary predictors for career awareness?					
How confident are you, as a general education teacher, in your implementation of career awareness?					

**APPENDIX C: SECONDARY MEASURE: TEACHER USE AND STUDENT ACCESS
OBSERVATION SCORING GUIDELINES**

	0 points	1 point	2 points
Predictor shared with students	Missing or completely inaccurate	Predictor was implicitly stated (e.g., discussed the predictor but not named) or used incorrect language	Predictor was explicitly shared (e.g., verbally stated, written on the board) with students, using correct language
Essential characteristic shared with students	Missing or completely inaccurate	Essential characteristic was implicitly stated (e.g., discussed the essential characteristic but not named) or used incorrect language	Essential characteristic was explicitly shared (e.g., verbally stated, written on the board) with students, using correct language
Rationale for essential characteristic shared with students	Missing or completely inaccurate	Rationale was implicitly stated (e.g., we are talking about this because...) No explicit mention of adult life preparation	Rationale was explicitly stated (e.g., we are talking about this essential characteristic because...) in preparation for adult life
Embed predictor throughout the lesson	Missing or completely inaccurate	The predictor and/or essential characteristic discussed only one time throughout the lesson	The predictor and/or essential characteristic discussed more than once throughout the lesson (e.g., hook, teacher input, closure)
Student engagement with predictor (e.g., activity, discussion)	Teachers did not implement an opportunity for students to engage with the predictor (e.g., discussion, worksheet, activity, project). Student response is not required.		Teachers implemented an opportunity for students to engage with the predictor (e.g., discussion, worksheet, activity, project). Student response is not required – only teacher presentation

APPENDIX D: GENERALIZATION PROBE RUBRIC

	0 Points	1 Point	2 Points
Identified career technical education as a predictor	Missing or Inaccurate	Predictor identified is a synonym to “career technical education” (e.g., vocational education)	Predictor identified as “career technical education”
Identified one essential characteristics	Missing or not answered	One essential characteristic identified is related to a different predictor	One essential characteristic identified are correct and relate to CTE
Activity aligned with essential characteristic	Not answered or not related to essential characteristic.	Activity included an activity related to a different essential characteristic than listed	Activity/Activities related to the listed essential characteristic
Identified self-determination/self-advocacy as a predictor	Missing or Inaccurate	Predictor identified is a synonym to “self-determination/self-advocacy”	Predictor identified as “self-determination/self-advocacy”
Identified one essential characteristics	Missing or not answered	One essential characteristic identified is related to a different predictor	One essential characteristic identified are correct and relate to self-determination/self-advocacy
Activity aligned with essential characteristic	Not answered or not related to essential characteristic.	Activity included an activity related to a different essential characteristic than listed	Activity/Activities related to the listed essential characteristic
Identified self-care/independent living as a predictor	Missing or Inaccurate	Predictor identified is a synonym to “self-care/independent living”	Predictor identified as “self-care/independent living”
Identified one essential characteristics	Missing or not answered	One essential characteristic identified is related to a different predictor	One essential characteristic identified are correct and relate to self-care/independent living
Activity aligned with essential characteristic	Not answered or not related to essential characteristic.	Activity included an activity related to a different essential characteristic than listed	Activity/Activities related to the listed essential characteristic

_____ / 18 points

APPENDIX E: FEASIBILITY EVALUATION (SOCIAL VALIDITY)

Feasibility Evaluation of GENERAL ED PD Modules (Adapted from Foster & Price, 1996)

Indicate your level agreement (strongly agree, agree, disagree, or strongly disagree) with each statement in the topic areas below—general design features, format, language and grammar, user functions, and performance feedback.

TOPIC	6 Strongly Agree	5 Agree	4 Somewhat Agree	3 Somewhat Disagree	2 Disagree	1- Strongly Disagree
General Design Features						
1. Directions for using ObaVerse Learning Management System were clear						
2. The welcome screen was visually appealing						
3. The GENERAL ED PD Introduction was clear						
4. The GENERAL ED PD Introduction was concise						
5. The length of the lessons were adequate for learning the content						
Format						
6. The font was consistent						
7. The font was easily read						

8. The lessons used consistent color						
9. The punctuation was consistent						
10. The navigational icons were easy to locate						
Language and Grammar						
11. Lessons used socially appropriate language and avoided culturally biased language						
12. Lessons avoided culturally biased language						
13. Technical jargon was explained						
14. Abbreviations and acronyms were explained						
User Functions						
15. The pace of the lessons was easily managed						
16. Instructional material was easily reviewed						
17. How to make a selection on the screen was clear						
18. In general, GENERAL ED-PD online lessons were						

easily navigated						
Performance Feedback						
19. I would recommend GENERAL ED PD online lessons to a colleague.						

APPENDIX F: INTERVENTION RATING SCALE (SOCIAL VALIDITY)

Intervention Rating Profile for GENERAL ED

(adapted from Martens, Witt, Elliott, & Darveaux, 1985)

Date: ____/____/____

School: _____

Teacher: _____

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1. This was an acceptable intervention for general education teachers.	1	2	3	4	5	6
2. Most general education teachers would find this intervention appropriate for increasing their knowledge of the predictors of postschool success.	1	2	3	4	5	6
3. This intervention proved effective in changing my ability to use the predictors of postschool success in my instruction.	1	2	3	4	5	6
4. I would suggest the use of this intervention to other teachers.	1	2	3	4	5	6
5. The need to teach teachers how to prepare students for postschool life was enough to warrant use of this intervention.	1	2	3	4	5	6
6. Most teachers would find this intervention suitable for increasing their understanding of the predictors of postschool success.	1	2	3	4	5	6

7. I would be willing to use this intervention in a professional development or department meeting with colleagues.	1	2	3	4	5	6
8. I would be willing to use the information learned from this intervention in my classroom.	1	2	3	4	5	6
9. This intervention didn't result in negative side effects for me.	1	2	3	4	5	6
10. This intervention was appropriate for a variety of general education teachers.	1	2	3	4	5	6
11. This intervention was consistent with other professional development experiences.	1	2	3	4	5	6
12. The intervention was a fair way to teach using the predictors of postschool success.	1	2	3	4	5	6
13. This intervention was reasonable for increasing knowledge of the predictors of postschool success.	1	2	3	4	5	6
14. I like the GENERAL ED app procedures used in this intervention.	1	2	3	4	5	6
15. This intervention was a good way to engage in professional development to learn about preparing students for adult life.	1	2	3	4	5	6

16. Overall, this intervention was beneficial for me as a general education teacher.	1	2	3	4	5	6
17. Overall, this intervention will be beneficial for my instruction used to prepare students for adult life.	1	2	3	4	5	6