An Exploration of the Relationship Between Interdisciplinary Collaboration and Participation of Students with Disabilities in Secondary Career and Technical Education

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AN EXPLORATION OF THE RELATIONSHIP BETWEEN INTERDISCIPLINARY COLLABORATION AND PARTICIPATION OF STUDENTS WITH DISABILITIES IN SECONDARY CAREER AND TECHNICAL EDUCATION

by

Crystal Kay Emery

A dissertation submitted in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

Disability Studies

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ABSTRACT

An Exploration of the Relationship Between Interdisciplinary Collaboration and Participation of Students with Disabilities in Secondary Career and Technical Education

by

Crystal Kay Emery, Ph.D.
Utah State University, 2022

Students with disabilities have been shown to be less college and career ready and are not achieving postschool success in employment and postsecondary education at the same rate as compared to their non-disabled peers. Career and Technical Education (CTE) is an evidence-based practiced that has been shown to improve postschool outcomes for students with disabilities. Interdisciplinary collaboration is needed to effectively support students with disabilities in CTE pathways. This exploratory study examines the CTE course-taking patterns of students with disabilities in Utah and compares them to the perceptions of interdisciplinary collaboration patterns of the educators supporting them. Three broad findings offer insight into how we support both students and educators. Three collaborative practices were found to be related to CTE enrollment patterns of students with disabilities: (a) the practice of co-teaching, (b) the
existence of a formal transition team in the school, and (c) high levels of education professionals’ attendance at student IEP meetings. Teacher perceptions of barriers to collaboration and collaborative practices within their school were found to be related to their perception of access to CTE for students with disabilities. Finally, different professional disciplines experience different barriers to collaboration and require different training and support. Implications of these findings and recommendations for future practice and research will be discussed.
PUBLIC ABSTRACT

An Exploration of the Relationship Between Interdisciplinary Collaboration and Participation of Students with Disabilities in Secondary Career and Technical Education

Crystal Kay Emery

Students with disabilities have been shown to be less ready for college and career when they leave high school than students without disabilities. Secondary transition is the process of a student with disabilities moving from school to post-school settings. Research has shown that participation in career and technical education (CTE) while still in high school for improves the likelihood of meaningful employment after high school for students with disabilities. Research has also shown that collaboration between educators improves academic outcomes for students. Special education (SPED) teachers have extensive training in supporting students with disabilities throughout the education process. Collaboration between SPED teachers and general education teachers (e.g. CTE teachers) may have play an important role in preparing students with disabilities for future educational and vocational experiences.

The purpose of this research was to explore the CTE course-taking patterns of students with disabilities and compare them with factors of collaboration between different educational professionals. The author sought to identify factors of collaboration that may support the participation of students with disabilities in CTE in high school. Additionally, this study explored the barriers to collaboration and the collaborative
practices most commonly experienced by educators in Utah. This study demonstrated that the practice of co-teaching, the existence of a formal multidisciplinary transition team, and high levels of attendance by education professionals in student IEP meetings were related to higher levels of participation in CTE for students with disabilities. This study also demonstrated that different education professionals experienced collaboration differently and may need different instruction in support to collaborate effectively.
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Crystal K. Emery
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An Exploration of the Relationship between Interdisciplinary Collaboration and the Participation of Students with Disabilities in Secondary Career and Technical Education

Students with disabilities (SWD) experience a disproportional risk of isolation and marginalization as they transition from school to adulthood as compared to their peers without disabilities (Halpern, 1992; Harvey, 2002; Mazzotti et al., 2020). Transition services for SWDs were initially mandated in 1990 by the Individuals with Disabilities Education Act (IDEA); however, more than 30 years later, the gap in post-school success remains (Mazzotti et al., 2020; Rowe et al., 2020; Test et al., 2009). SWDs are not achieving positive post-school outcomes in employment and postsecondary education at the same rate as their non-disabled peers (Harvey et al., 2020), and have shown to be less ready for college and career than their non-disabled peers (Lombardi et al., 2017). Recent updates in legislation (Every Student Succeeds Act (ESSA), 2015; IDEA, 2004; Perkins V, 2018; Workforce Innovation Opportunity Act (WIOA), 2014) were designed to improve transition outcomes by improving college and career readiness for all of the nation’s high school students, with an emphasis on SWD.

These four pieces of legislation have the potential to work together to support transition-age SWDs in becoming ready for their transition to adulthood. The Strengthening Career and Technical Education for the 21st Century Act of 2018 (also known as Perkins V) offers funding and guidance for CTE for America’s youth and young adults (Perkins V, 2018). ESSA (2015) legislates education standards for all public schools. These two pieces of legislation apply to all students and not to a specific population, although SWDs are explicitly addressed. The reauthorization of both of these
pieces of legislation traditionally interpreted for students without disabilities updated the language to actively include SWDs in accessing college and career readiness opportunities. WIOA (2014) legislated the public workforce system as a whole but has language targeting access for underserved populations including people with disabilities. IDEA (2004) legislates special education (SPED) services for SWDs specifically. In a recent study addressing college and career readiness assessment, Lombardi et al. (2020) noted that “both ESSA and Perkins V support and promote career readiness opportunities for all students, with and without disabilities” (p. 147). Legislation is aligning with what we know from the research. Paid work experience, inclusion in general education, and completing a program of study (as emphasized in WIOA, ESSA, and IDEA) were all found to be among the predictors of post-school success (Mazzotti et al., 2020).

Opportunities for work-based learning experiences is one of the five pre-employment transition services (Pre-ETS) mandated in WIOA (2014) for SWD as well as a requirement for all CTE students under Perkins V (2018). Work-based learning experiences are short-term work opportunities for students to gain experience in a real-world setting in their field of study (i.e., an internship). These experiences are often associated with the paid work experience Mazzotti et al. (2020) identified as a predictor of post-school success for SWD. CTE concentration (1.5 credits in a CTE pathway) and completion (3.0 credits in a CTE pathway) show clear benefits in post-secondary education and employment outcomes (Lee et al., 2016, Mazzotti et al., 2020). In high school settings, 1.0 credit equates to one full school year. So 1.5 credits means a student completes three semester long classes in a single pathway and 3.0 credits means a student completes six semester
long classes (or three school years) in a single pathway. Concentration or completion in CTE pathways with a series of classes taken in one vocational specialty also meets the multi-year courses of study requirement in the IDEA (2004) transition mandate. Lombardi et al. (2018) stated that “the Perkins Act paved the way for CTE to emerge as a viable secondary pathway for SWD … and emphasized PSE [post-secondary education] for disadvantaged populations, including those with disabilities” (p. 29). Despite evidence that participation in career and technical education (CTE) in high school improves post-high school education and employment outcomes for SWDs (Mazzotti et al., 2020), it appears SWDs are still not accessing CTE at the same rate or intensity as students without disabilities (Lombardi et al. 2018; Theobald et al., 2019). Available research does not provide a clear picture of CTE enrollment for SWD and the factors that influence them. Additional research is needed to examine these patterns and identify factors that support participation in CTE for SWDs. Collaboration between educators offers a potential solution for increasing the adoption of CTE among SWD.

The most recent authorizations of these laws have sought to improve supports for secondary-age students with disabilities while encouraging collaboration across professional disciplines (Harvey et al., 2020). Participation in CTE has emerged as an evidence-based predictor of positive post-school employment and education outcomes (Mazzotti et al., 2020), but communication and collaboration between CTE and SPED professionals is often inefficient and ineffective in supporting SWDs in CTE classes (Emery, 2019; Schmalzried & Harvey, 2014). A growing research base has shown that collaboration between educators improves teaching practices and student educational outcomes (Goddard et al., 2007; Ronfeldt et al., 2015). Schools utilizing better
collaborative practices tend to produce better student achievement outcomes (Schleifer et al., 2017). Despite this new understanding, intentional collaborative practices are still lacking in many schools (Shakenova, 2017). Barriers such as lack of time and resources, territorial attitudes, and lack of understanding of teacher roles and responsibilities inhibit collaborative practices (Johnson, 2003; Schmalzried & Harvey, 2014). This is especially true for collaboration between SPED and CTE professionals (Emery, 2019). Based on available theory and research, this lack of collaboration may be linked with the unequal representation in CTE among SWD. Additional research is needed to explore the effect of collaboration on student participation in CTE.

In a position paper on partnering to improve CTE for SWD, Harvey et al. (2020) concluded that more intense collaboration was needed between SPED and CTE professionals to improve participation in CTE for SWD in secondary settings. Additional questions remain as we seek to understand current collaborative practices between SPED and CTE professionals and the effect that collaboration has on supporting SWD in CTE. How do SPED and CTE teachers collaborate in practice as they teach in schools? How do they most effectively work together? What are their roles and responsibilities as they collaborate to support SWD? How does collaboration between SPED and CTE affect access to CTE for SWD? Without research to address these questions, professional development cannot be offered to effectively support collaboration between disciplines and positive postschool outcomes for SWD will not be fully realized.

**Purpose Statement**

The purpose of this research project is to examine the collaboration practices among SPED and CTE educators serving transition-age SWD as they relate to enrollment
of SWD in CTE pathways. Identifying practices that support and barriers to CTE course taking for SWD will help inform future professional development, support, and guidance offered to educators and administrators. I hypothesize that local education agencies (LEAs) with higher levels of interdisciplinary collaboration will demonstrate higher enrollment of SWD in CTE. In addition, larger districts and charter schools may be more likely to show higher enrollment of SWD in CTE than smaller districts and charter schools that often have fewer resources.

**Research Questions**

Through this study, I am seeking to answer the following questions:

1. What are the most common barriers to collaboration experienced by different education professionals in co-serving SWD?

2. What are the most common collaborative practices used by different education professionals in co-serving SWD?

3. What is the frequency of collaboration with interdisciplinary education partners for different education professionals?

4. Is there a relationship between the size and type of the LEA and the proportion of SWD concentrating in or completing CTE pathways when controlling for the proportion of all students concentrating in or completing CTE pathways?

5. What interdisciplinary collaboration factors (i.e. the existence of a formal interdisciplinary transition team, co-teaching, input from multiple stakeholders in IEP meetings, three most common positive collaboration
practices, and the three most common barriers to collaboration) predict the proportion of SWD concentrating in or completing CTE pathways?

6. What interdisciplinary collaboration factors are related to access to CTE for SWD?
Chapter II

LITERATURE REVIEW

Legislative Updates Benefiting SWD

_Strengthening Career and Technical Education for the 21st Century Act (Perkins V), 2018._

The first legislation supporting vocational education was introduced around the turn of the 20th century as the nation was becoming increasingly industrialized. The National Vocational Education Act (1917) addressed the country’s increasing need for skilled labor. The purpose of the act in its current incarnation is to expand opportunities for all students to explore career and technical education (CTE) programs of study and career pathways of value to the national and global economy. CTE is defined in the legislation as “organized educational activities that offer a sequence of courses that provides individuals with coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions…” (Strengthening Career and Technical Education for the 21st Century Act, 2018).

Reauthorization of the Perkins Act in 2018 improved the law in several ways that benefited SWD. First, the new law requires CTE programs to offer participation in work-based learning opportunities to all students. This provides students with real world experience and skill building in a given career field and ensures that CTE programs are providing a high-quality, comprehensive education in the desired field. The legislation also encourages the engagement of employers in setting up CTE programs to support this
requirement. Second, the new law incorporates training of employability skills into CTE programs, not just the skills required to perform the tasks of the profession. Third, the legislation encourages incorporation of universal design for learning to meet the varied learning needs of a diverse student population. The purpose of this focus is to increase employment opportunities for underserved students who are disconnected from the education system due to a variety of challenges – including SWD – leading to chronic unemployment or underemployment. Finally, the reauthorized law incorporates challenging academic standards to ensure a high standard of learning for CTE programs (Education and Labor Committee). This focus on high expectations directly benefits SWD. In a study examining teacher perspectives, Morgan (2015) found that both general and special education teachers’ internal scripts about disability were a hindrance to full inclusion in general education. By focusing on the students’ disabilities rather than strengths, teachers had lower expectations that hindered “positive outcomes along with the acceptance of students with disabilities” (p. 7). Morgan also stated that “students need access to quality [general education] teachers to promote high expectations” (p. 8).

**Every Student Succeeds Act (ESSA), 2015.**

In 1965, President Lyndon B. Johnson signed the Elementary and Secondary Education Act (ESEA, 1965) into law. This legislation made the education of all children a national priority. It was intended to provide a full education to the nation’s children as a civil right. In 2015, Congress reauthorized the law and titled it the Every Student Succeeds Act (ESSA, 2015) with a stronger focus on the quality education needed to support students in being academically and functionally ready for college and career. Lombardi et al. (2020) stated that “ESSA (2015) moves past access to college and
employment and places a strong emphasis on preparation to succeed in postsecondary and workplace settings.” (p. 147).

The ESSA made changes that benefited SWD in several important ways. As the legislation has been reauthorized over the years, it has increasingly included protections that support equity of opportunity for disadvantaged and high-need students – such as SWD. For the first time in its history, this legislation includes language requiring that all students (including SWD) be taught to high academic standards so they will be prepared to succeed in postsecondary education and career employment (ESSA, 2015). While maintaining accountability for high academic standards, the ESSA describes more flexible assessment practices for students who have been marginalized by rigid academic assessment tools in the past. This new version encourages innovation in progress measurement and educational instruction to meet the varied learning needs of a diverse student population. This inherently opens learning pathways and opportunities that can be tailored to address the unique needs of SWD. The new law gives States more input in how they account for student progress. Performance measures include four mandatory academic indicators and one measure of school quality or student success. Each state must develop a plan for achieving these specific levels of performance. The academic measures are standard across the board and include (a) academic achievement, (b) academic progress, (c) English language proficiency, and (d) high school graduation rates. The quality/success indicator can be chosen by each state from a list ranging from kindergarten readiness to discipline and absenteeism rates. College readiness is one option that states may choose to fulfill this indicator (Lee, Understood.org).
The increased attention on college and career readiness directly affects the education of SWD. The law calls for States to create alternate academic achievement standards for students with the most significant cognitive disabilities provided those standards are aligned with the challenging State academic standards, promote access to the general education curriculum, and are aligned to ensure that a student who meets the alternate academic achievement standards is on track to pursue postsecondary education or employment (ESSA, 2015).

If alternate academic achievement measures or accommodations are needed for a student with a disability, those must be listed in the student’s Individualized Education Program (IEP) or 504 plan (IDEA, 2004; Rehabilitation Act, 1973). By making these requirements explicit, SWD and their caregivers have the opportunity to be more aware of how special education goals and services map onto core academic standards and requirements. The language in the legislation emphasizes graduation as preparation for further education and employment for every student – including SWD.

**Workforce Innovation and Opportunity Act (WIOA), 2014.**

WIOA is the latest legislative amendment of The Rehabilitation Act of 1973 that funded state-provided vocational rehabilitation services. The purpose of the original act was to help people with disabilities find employment and thereby strengthen the nation’s workforce. Section 504 of this act stated for the first time in any legislation that individuals could not be discriminated against on the basis of their disability by any entity receiving federal funding. The Americans with Disabilities Act (ADA, 1990) extended this civil right to all public entities. The Workforce Investment Act (WIA, 1998) provided investment activities to improve the quality of the nation’s workforce and help
the U.S. remain competitive in rapidly growing global markets. WIOA repealed and replaced WIA and amended the Rehabilitation Act of 1973 to update the support of employment for people with disabilities.

WIOA (2014) was “designed to help job seekers access employment, education, training, and support services to succeed in the labor market and to match employers with the skilled workers they need to compete in the global economy” (Department of Labor). While the overall purpose was related to the national workforce as a whole, this updated legislation strengthened employment services for underserved or at-risk populations such as people with disabilities. WIOA sought to actively improve services to individuals with disabilities by providing access to high-quality services with the expectation of preparing them for competitive integrated employment, not just a job. Part of this shift was the inclusion and funding of Pre-ETS for youth with disabilities to prepare them for postsecondary education and career employment. Pre-ETS identified services required in five areas of focus: (a) workplace readiness training, (b) job exploration counseling, (c) work-based learning experiences, (d) counseling on postsecondary education, and (e) counseling on self-advocacy. State Vocational Rehabilitation (VR) agencies are required to set aside at least 15% of their federal funding award to provide these services to SWD. State VR agencies are also required to engage employers to improve employment outcomes for all participants. This emphasis on pre-employment training provides increased opportunities for youth to gain competitive integrated employment after high school.

*Individuals with Disabilities Education Act (IDEA), 2004.*
IDEA (2004) is the latest amendment of The Education of All Handicapped Children Act of 1975, which was civil rights legislation giving all children with disabilities the right to a free appropriate public education in the least restrictive environment possible. This special education (SPED) legislation was reauthorized in 1990 to become IDEA and set forth improved expectations for inclusive education for SWD. The language in the law reflects a change in societal perspectives regarding people with disabilities reflecting the significant input provided by the disability rights movement in drafting the legislation (Heumann, 2020). Congress described disability as a natural part of the human experience which does not diminish an individual’s right to participate fully in or contribute to society. Congress found that improving educational success of SWD was integral to the national policy of ensuring equality, opportunity, and full participation in society for all individuals (IDEA, 1990). Thirty years later we are still trying to align practice with this inspired language.

IDEA (1990) introduced transition planning in student IEPs to support youth transitioning to adulthood and strengthened the language granting SWD access to the general education curriculum. IDEA was reauthorized again in 2004 clarifying expectations to provide SWD educational opportunities equal to that of their non-disabled peers. IDEA 2004 improved accountability requirements for the achievement of SWD and made the transition mandate more robust (U.S. Department of Education).

Under IDEA (2004), all SWD are required to have a transition plan as part of their IEP starting at age 16. Transition services are a required part of the transition plan.

According to IDEA, transition services are defined as:
a coordinated set of activities for a child with a disability that (1) is
designed to be within a results-oriented process, that is focused on
improving the academic and functional achievement of the child with a
disability to facilitate the child’s movement from school to post-school
activities, including postsecondary education, vocational education,
integrated employment (including supported employment), continuing and
adult education, adult services, independent living, or community
participation; and (2) is based on the individual child’s needs, taking into
account the child’s strengths, preferences, and interests.

Additional requirements for IEP transition plans under the IDEA transition
mandate are outlined in Indicator 13 of states’ annual performance report. Indicator 13
describes the transition plan requirements for every student on an IEP of transition age
(16-21). To comply with IDEA, the following elements are required for every IEP
transition plan:

- Appropriate measurable postsecondary goals in the areas of training,
education, employment, and, where appropriate, independent living (updated
annually)
- Age-appropriate transition assessments used to set postsecondary goals
- Transition services in the IEP to support meeting postsecondary goals
- IEP goals to support transition needs
- Multi-year courses of study to support meeting postsecondary goals
- Student participation in transition planning IEP
• Additional agencies invited as appropriate with permission from the student and their legal guardian

States are required to monitor LEAs for compliance with Indicator 13 to ensure each student with an IEP has a robust transition plan in place designed to help them achieve their postsecondary goals.

**Legislation Designed to Encourage Professionals to Work Together**

Reading through the updates to each piece of legislation, there seems to be a deliberate realignment happening. Each piece of legislation references others to explain or support the changes being made. Legislatively, there is an effort to support collaboration where there is overlap between laws. Perkins V (2014), which is designed to guide CTE professionals, has the same mandate for work-based learning experiences as WIOA and the Pre-ETS mandate for workforce development for SWD. The indicator 13 standards of transition planning under IDEA align with Perkins V courses of study for CTE and WIOA requirements for workplace readiness training. ESSA sets high academic standards for every student which is also reflected in the updates to Perkins V. All three pieces of legislation that apply to the broad population (ESSA, Perkins V, and WIOA) reference inclusion and support services for people with disabilities as stated in IDEA. All four laws reference collaboration between disciplines (inside and outside of the school setting) to meet the needs of diverse learners and a diverse workforce. The focus on employability skills in Perkins V aligns perfectly with WIOA’s Pre-ETS mandate and IDEA’s transition mandate.

The language in the legislation is evolving beyond simple access toward full inclusion and equal opportunity for all. WIOA (2014) does not just mandate work-based
learning but requires work-based learning experiences provided in an integrated environment to the maximum extent possible which maps on to the least restrictive environment mandate for the education of individuals with disabilities under IDEA (2004). The IDEA transition mandate requires additional agencies to be invited to IEP meetings as appropriate to meet the student’s needs encouraging interdisciplinary collaboration.

Social service and educational agencies governed by this legislation are clearly expected to provide inclusive high-level opportunities for SWD. Why, then, are students still struggling with low expectations and inadequate access to collaborative services? Old thinking is still at play. The field of postsecondary transition is still relatively young. We are still on the cutting edge of full inclusion for individuals with disabilities. Mindsets and biases that influence practice are still changing even though the laws were introduced years ago. For example, collaboration between states and LEAs for the provision of Pre-ETS as required by WIOA is often interpreted narrowly in practice. States put the VR agency in charge of it or expect educators to add Pre-ETS to their curricula. But this does not take into consideration the other agencies governed by similar laws that would help provide services in the most integrated setting possible as directed by WIOA (Emery, 2019).

**Literature Review**

The benefit of participation in CTE by SWD has been well-documented in the literature (Harvey, 2001; Harvey et al., 2020; Lee et al., 2016; Mazzotti et al., 2020). Generally speaking, researchers found that SWD who participate in CTE pathways in high school have improved employment and education outcomes after high school.
Work-based learning experiences for SWD during high school also improve post-school outcomes in employment, education, and independent living (Mazzotti et al., 2020). As a key component to CTE pathway completion, participation in work-based learning experiences is an important benefit to participating in CTE for SWD.

SPED teachers and CTE teachers need to work together to support SWD for success in CTE pathway completion (Harvey et al., 2020). The articles reviewed in the current study addressed four main categories related to collaboration between SPED and CTE in serving SWD: (a) strengths and challenges of participation of SWD in CTE, (b) perceptions and practices for inclusion of SWD in CTE, and (c) professional development needs, and (d) interdisciplinary collaboration to support student outcomes.

Two studies in this review addressed participation of SWD in CTE (Harvey, 2001; Lombardi, 2018). Three studies explored perceptions and practices for inclusion of SWD in CTE classrooms (Casale-Giannola, 2012; Eisenman et al., 2011; Schmalzried & Harvey, 2014). Four studies addressed professional development efforts to support CTE educators to serve SWD in their classrooms (Emery, 2019; Hall, 2007; Male, 2011; Sturko & Gregson, 2009). Three studies address the benefits of interdisciplinary collaboration for teachers and students (Johnson et al., 2003, Mattatall & Power, 2014; Ronfeldt et al., 2015)

**Participation of SWD in CTE**

Harvey (2001) used secondary data analysis to investigate the enrollment status and trends of SWD in secondary CTE in Pennsylvania and compare enrollment with workforce demands for labor in the state. The author used data from the Pennsylvania Department of Education’s CTE Vocational Education Management Information System.
and the Department of Labor and Industry's Center for Workforce Information and Analysis for the period of 1995 to 2000. Harvey found that students were accessing CTE at relatively high rates in Pennsylvania compared to the national average. The CTE enrollment and training for SWD appeared to be in line with Pennsylvania's demand for labor and employment predictions. The area of institutional food services was in most demand across the state and it was also the instructional program with the most SWD enrolled.

With this high level of enrollment in CTE for SWD, Harvey (2001) concluded that additional teacher training was needed to support CTE teachers in meeting the unique needs and increasing enrollment of SWD in their classrooms. Topics he deemed critical to supporting CTE educators included instructional strategies, accommodations, and modifications for SWD. He recommended providing on-going and comprehensive professional development for CTE teachers. He also recommended developing a close working relationship between CTE and SPED professionals in addressing student needs and services described in their IEP. Harvey stated that the question left unanswered in this study is whether SWD in PA receiving secondary CTE training are finding related employment given the closely related labor market demands. Given that Harvey made this recommendation 20 years ago and it still rings true today, this is an important area for future research.

Lombardi et al. (2018) investigated CTE participation for students with intellectual disabilities (ID) through a literature review. The authors reviewed 89 articles. Studies addressing SWD in CTE appeared primarily in journals addressing disability and not in CTE-specific journals. In general, students with ID were significantly
underrepresented in the literature suggesting that they had less access to CTE than their peers without disabilities. Despite the known benefits of work-based learning experiences on post-school outcomes for SWD, community-based employment experiences through CTE were not offered to SWD at the same rate as students without disabilities. SWD also lacked opportunities to engage with technology in the CTE environment. A clear gap in the research regarding the use of technology by SWD in CTE settings was identified through this literature review.

Lombardi et al. (2018) highlighted that there are still significant gaps in the ways in which current policies related to transition-age youth could work together to improve employment outcomes for SWD. The authors recommended that future CTE policies should be more explicit in the inclusion of SWD and SPED should be more explicit in their practice of including CTE in writing student plans. The current review also highlighted that there is still a significant gap between the fields of CTE and SPED. Lombardi et al. proposed that this gap will only be bridged if practitioners and researchers from both fields work together more collaboratively to include SWD - especially students with ID. They recommended that future research should work to move the relationship between CTE and SPED forward. Also, research on evidence-based practices that are effective for SWD in CTE should be explored.

These two studies illustrate the disparity in enrollment rates in CTE for SWD. Theobald et al. (2019) found similarly inconsistent rates of CTE participation by SWD. However, as legislation, research, and practice continue to align it is hopeful that SWD will have more consistent access to CTE. As this happens, it is clear that better support for collaboration between CTE and SPED will be needed.
Perceptions and Practices for Inclusion of SWD in CTE

Casale-Giannola (2012) used a qualitative comparative design to examine the strengths and weaknesses of both academic and vocational inclusive classrooms in an effort to identify the unique elements of the vocational secondary community that support or hinder success of SWD in inclusive settings. Fifty-five secondary professionals from two vocational/technical high schools participated including 15 academic content area teachers, 11 SPED teachers, 20 vocational teachers, two learning consultants, five district supervisors, and one child study team member. The researcher participated in the study as the inclusion consultant. Field notes were kept from classroom observations and consultation meetings with the inclusion consultant (researcher). Data from a survey that participants completed were also collected and analyzed.

The author identified several strengths and challenges of serving SWD in inclusive settings. Strengths included meaningful teacher-student relationships, real-life connections to content, active-learning with multiple learning modalities, repetition, teacher passion and expertise, and collaboration between educators and SPED professionals through co-teaching. Challenges included educators’ lack of strategies and resources to support SWD, SWD lack of basic skills to keep up in class, educators being unaware of SPED laws and student needs and accommodations, and educators’ difficulty supervising the classroom (both behavior management and classroom management skills were needed). Inclusion strengths and challenges in vocational education settings were similar to the traditional high school setting. Recommendations for supporting SWD in vocational inclusive classrooms included: (a) increasing active learning in the classroom, (b) providing basic educational skill supports to SWD in all content areas, (c) increasing
teacher repertoire of strategies and modifications to support SWD, (d) increasing teacher understanding of SPED laws, issues, and students, (e) enhancing co-teaching and collaboration between teachers, (f) improving teacher behavior and classroom management skills, and (g) building a sense of community among teachers and students in the school. Given these recommendations, exploration of current collaboration practices between CTE and SPED teachers and how these practices may affect the participation of SWD in inclusive CTE settings could be an important next step for future research.

Eisenman et al. (2011) used a longitudinal case study based in grounded theory research to examine the implementation of an indirect collaborative-consultation approach to SPED in an inclusive vocational/technical high school and identify perceived benefits and challenges. The school was newly opened and this model was new to the district, so another key issue that emerged was the need to redefine SPED's role in this inclusive model. Self-contained and resource classrooms were replaced with this collaboration-consultation model of SPED. A system of twice-weekly 30-min professional development sessions was instituted to support general educators in serving SWD. Participants included two SPED teachers hired as learning support coaches to consult and collaborate with general education teachers serving SPED students in inclusive technical high school classrooms and one professional development specialist providing regular, in-house professional development for teachers at the school. Field notes, monthly progress reports, and transcribed audio recording of interviews with participants were used to identify themes in qualitative analysis. Qualitative procedures
were sound and well-defined in the study. They included the use of member checking
with participants to be sure their perspectives were represented accurately.

An overall theme of shifting responsibilities was identified as a key outcome from
this study. Both general and special educators’ roles shifted with the full inclusion model
without the structure of self-contained and resource classrooms. SPED teachers became
coaches as the general educators provided supports and accommodations in the classroom
for SWD. Three subthemes were identified: relationships, supports, and perceived
benefits. Relationships between general educators and SPED teachers were built to be
collaborative. The two disciplines learned from each other as they shared accountability
for serving SWD. This model required SPED and general educators to work together
equally to serve SWD and offered support to teachers by creating a professional learning
culture. The model is described by the following quotes from participant interviews. "We
started creating a culture.... We started to collaborate, really collaborate.... And then it
really started to come alive." (p. 96). "The teachers were developing into an informal
learning community.... The more they shared their professional practices with others, the
more the collaborative culture grew." (p. 96). Administrative support was also critical to
the success of this model. The professional development program that was put in place
was a crucial support in developing these shared practices. Flexibility of instructional
arrangements and time to learn from each other allowed the team to capitalize on shared
expertise and were viewed as the primary benefits to staff in this model.

Schmalzried and Harvey (2014) examined perceptions of practices used by CTE
teachers and secondary education staff (SPED professionals and guidance counselors) to
collaborate and communicate in regards to students being co-served through
administration of a survey. Participants included five CTE administrators, 64 CTE teachers, 42 SPED teachers, and 20 guidance counselors from stand-alone CTE centers and their corresponding secondary schools. The authors found several persistent challenges to effective collaboration between the disciplines. Communication was important to all stakeholders, but not initiated regularly or effectively. Participants were unclear as to whose responsibility it was to share information about students and when to share it. Communication took place only as needed or not at all rather than proactively to plan services for SWD in CTE. Methods used for communication were not varied and caused confusion among stakeholders. CTE professionals were not typically present at IEP meetings or included in decision making about student placement in CTE. Neither set of professionals received professional development regarding the other so the roles and responsibilities of each stakeholder group were unclear.

The authors recommended that CTE, school, and special education administrators collaborate to set clear policies for communication and collaboration between disciplines. They suggested that LEAs create inter-educational teams to formulate recommendations for practice to include: (a) CTE representation at IEP meetings, (b) formalized structure of information sharing, (c) clearly-defined roles and responsibilities of each stakeholder in serving SWD in CTE, (d) professional development opportunities for CTE and SPED to more effectively serve shared students, and (e) formal and informal methods of communication and collaboration between disciplines.

These studies show attempts to understand and implement best practice for inclusion of SWD in CTE, but are mostly exploratory in nature. They offer important insights and recommendations for current practice. This examination of present practice
and perspectives should lead to research in best practice. Further research needs to be conducted at state and local levels regarding the effectiveness of present practice in interdisciplinary communication and collaboration including professional development opportunities between disciplines.

**Professional Development to Support Interdisciplinary Collaboration**

Hall (2007) implemented a pretest/posttest with no control group design to evaluate the effect of disability awareness workshops on knowledge of and attitudes toward SWD for CTE professionals in rural high schools. Researchers provided four 3-hr workshops on disability awareness topics to 16 rural in-service CTE teachers. A pretest and posttest measuring knowledge about disability issues and legislation and attitudes about people with disabilities was administered before and after the series of workshops. Knowledge scores increased for all participants from pretest to posttest and the increase in knowledge was maintained or continued to improve one year after the training concluded. Attitude scores improved for all participants from pretest to posttest and the improvement in attitudes was maintained or continued to improve one year after the training concluded. In a follow-up conversation, CTE professionals noted a decrease in behavior problems in the classroom and a slight increase in academic scores of their classes overall as a result of implementing strategies learned in the training.

Disability awareness training may be an important step to improving CTE knowledge and attitudes toward SWD which may enhance the teacher’s ability to teach students of all abilities in their classrooms. One limitation of this study was that it only included CTE teachers who already had SWD in their classrooms. Another limitation was lack of a control group for comparison. Additional research on disability training for CTE
teachers with a control group and including CTE teachers with and without SWD in their classrooms is needed.

Male (2011) performed a similar study in the United Kingdom. This study also used a pretest/posttest design with no control to explore the effect of a program of professional development in inclusive education on teacher attitudes about inclusion. Researchers provided a 10-week training module on inclusive education to 48 teachers enrolled in a Master's program in Special and Inclusive Education. Students were from the UK, Africa, the European community, and other international origins. All were in-service teachers with a mean teaching time of about six years in general education. The Attitudes Toward Inclusive Education Scale (ATIES) was administered before and after a module as the pre- and posttest. Teacher attitude scores were significantly more positive towards inclusion after participation in the professional development module than they were before the module. Teachers commented about the module making them reflect on their practice and increase their confidence regarding inclusion.

High quality professional development with a focus on inclusion may be effective in improving teacher attitudes about inclusion, and therefore, improve inclusive practices in the classroom. This study included only teachers already enrolled in a master's program for special education, so they already had a vested interest in the subject and therefore were likely to be more open to attitudinal shifts. Additional research on this topic with increased rigor and a broader sample is needed to validate these findings. However, with these preliminary results, availability of high-quality professional development opportunities for teachers should be a priority for education administrators and policy makers.
Sturko and Gregson (2009) used a qualitative multi-case study design to explore CTE teacher learning and collaboration in two professional development experiences: (a) A one-time formal course taught by a master teacher and (b) a teacher study group meeting on an on-going basis throughout the school year. Six teachers from different CTE programs in a single high school participated. Both professional development experiences included a mix of CTE and academic educators. The authors sought to identify the kinds of teacher learning that occurs in the two types of professional development experiences, how the learning experiences differ and how they are the same, and the extent that collaboration occurred among the teachers who participated in each professional development experience. Qualitative methods for data collection and analysis were sound and robustly described in the article. The authors found that the formal course was designed to teach new information and innovation and provided structured learning opportunities about the specific topic being taught. The study group was not designed to teach new information but was more teacher-driven in content allowing teachers to improve their practice by learning from each other through on-going opportunities for discussion, reflection, and peer support. The two types of professional development were deemed to be complimentary.

Emery (2019) implemented a mixed method design combining the direct teaching and collaborative study group components recommended by Sturko and Gregson (2009). The author sought to evaluate the effect of joint training that included collaborative work groups on knowledge and attitudes of secondary SPED and CTE professionals. Researchers provided an in-service on the requirements, roles, and responsibilities of both SPED and CTE professionals in an effort to improve understanding between
disciplines. Previous research findings on barriers to collaboration and recommendations for effective collaboration was also presented. The in-service concluded with a collaborative work group where school teams including both SPED and CTE professionals set goals to improve collaboration between disciplines in their setting. Pretest and posttest data were collected measuring participants’ knowledge and attitudes regarding collaboration between disciplines. A nonequivalent control group of SPED and CTE professionals not offered the joint training was also administered the pretest and posttest and the data were used for comparison. Qualitative data were collected from the training group regarding barriers to collaboration they experienced in practice as well as perspectives on needed next steps to improve collaboration.

The results of the Emery (2019) study showed an improvement in both knowledge and attitudes toward interdisciplinary collaboration between CTE and SPED professionals. Both CTE and SPED professionals improved their knowledge of the roles and responsibilities of the other discipline in co-serving SWD. There was a significant difference between the disciplines in knowledge scores regarding the transition process for SWD on the pretest. CTE teachers scored significantly lower on this measure than SPED teachers. On the posttest, both disciplines improved their knowledge scores and the difference in knowledge between the disciplines was no longer statistically significant. Both disciplines also showed improvement in attitude scores regarding co-serving SWD from pretest to posttest. The most significant limitations to this study were the small sample size and lack of true randomization to treatment and control groups. Additional research is needed to support these findings.
As CTE teachers are required by Perkins V to integrate high academic performance aligning with the common core standards into their technical curricula, new professional development opportunities are necessary. Offering opportunities for formal instruction combined with teacher study groups including both academic and CTE teachers will support CTE teachers in their efforts to comply with the rigorous standards for instruction set out in Perkins V. This could also apply to CTE and SPED working together to support CTE teachers in their efforts to improve CTE instruction for SWD also set out in Perkins V.

**Interdisciplinary Collaboration to Support Teacher and Student Success**

Johnson et al. (2003) investigated factors related to both successful and unsuccessful collaboration efforts. The authors interviewed 33 program chiefs and program specialists in multiple departments and agencies that work with young children in a Midwestern state. The purpose of the study was to examine factors that either inhibited or facilitated interagency collaboration. Participant interviews took 20-25 minutes and related to the success or challenges in previous collaboration efforts. The authors identified seven factors deemed most important for successful collaborations between agencies: (a) commitment to shared vision and goals, (b) proactive, frequent communication, (c) strong leadership from key decision makers, (d) understanding the culture of agencies in the collaboration, (e) providing adequate resources for collaboration, (f) minimizing turf issues, and (g) engaging in serious preplanning. The authors noted the importance of creating successful collaborations to maximize available resources to move the work forward.
Ronfeldt et al. (2015) explored types of collaboration in instructional teams with over 9000 educators in 336 public schools in a Southern state over a two-year period. The authors used administrative data collected from teacher observations matched to survey responses from teachers to explore teacher experiences with collaboration in the public school system. The survey consisted of questions about the extent to which different types and topics of collaboration took place and the helpfulness of the collaborations. The authors performed a factor analysis and multi-level regression modelling to investigate the quality of different types or topics of collaboration. High quality collaboration was collaboration that teachers reported as both extensive and helpful. The authors found that high quality collaboration was associated with both teacher improvement and student achievement. Schools and teachers with higher quality of collaboration showed higher student achievement gains in math and reading. Similarly, schools with better quality collaboration showed better gains in teacher performance than school with low quality collaboration.

Mattatall and Power (2014) conducted a literature review to explore the impact of teacher collaboration on the achievement outcomes of students with learning disabilities. Due to a paucity of research specific to SWD, the authors also included literature exploring student achievement outcomes for general education students since SWD require the same high-quality instruction as their non-disabled peers. The literature review included 10 studies. The authors found a positive association between teacher collaboration and student academic achievement across all 10 studies in the review. The studies consisted of a variety of geographical locations and research methodologies which suggests the findings are generalizable across participants and settings.
These studies represent a research base for the efficacy of interdisciplinary collaboration as a tool to support student academic success. Although there is less research specific to SWD, interagency collaboration has been known to be a predictor of positive post-school outcomes for SWD for some time (Mazzotti et al., 2016; Mazzotti et al., 2020; Test et al., 2009). The studies in this review define collaboration as a broad set of practices, but little was found in the research about specific practices that make up best practice in interdisciplinary collaboration. Research is needed to explore specific collaborative behaviors practiced in the field that have an impact on student outcomes. Additionally, there is a gap in the research on how interdisciplinary collaboration affects other student factors related to school success such as course-taking patterns and academic decision-making.

**Need for Future Research**

The need for effective interdisciplinary collaboration within an LEA has been well documented. In a position paper, Harvey et al. (2020) express the need for more intense and intentional collaboration between SPED and CTE professionals to improve access to and success in CTE for SWD. This literature review supports that recommendation as a need in the field of secondary transition. CTE professionals need additional support and training in order to effectively work with SWD in their classrooms. As noted by Schmalzried and Harvey (2014), professionals need knowledge of the other’s roles and responsibilities and Sturko and Gregson (2009) identified the benefits of working collaboratively to learn from each other and create a network of support. Emery (2019) found that CTE and SPED professionals felt their professional disciplines alone were not sufficient. Educators in this study concluded that both school...
counselors and administrator should also be a part of the collaboration within a school to effectively serve SWD. However, best practices for collaboration and professional development have not yet been established in the research base.

Research on the use of collaborative practices between CTE and SPED professionals is lacking. It is unclear from the research what current collaboration practices are most commonly being used in the field and what practices are often missing. These gaps in the current research require further investigation. Additional research is needed to examine current practice to better understand what support and professional development is needed as we continue to improve how educators work together to support SWD in inclusive settings.

This literature review shows promising initial findings for interdisciplinary collaboration recommendations to support SWD in secondary CTE participation. With the research and legislation related to transition-age youth aligning and roles and responsibilities of teachers being redefined by the law, a revision of the training offered to education professionals is needed. In-service teachers are especially in need of opportunities for interdisciplinary collaboration to meet these new expectations. As SWD are increasingly served in inclusive settings, additional research is needed to better define best practice for the professionals involved. A well-supported education force will be better equipped to support SWD as they strive to become fulfilled, contributing adults in their communities and society as a whole.
Chapter III

Method

This study was a secondary analysis of data generated by the Utah State Board of Education (USBE). Two data sets were included in the analysis: (a) a data set related to CTE enrollment of SWD, and (b) survey responses by educators regarding interdisciplinary collaboration practices. The USBE transition team pulled data to examine the enrollment patterns of students with and without disabilities in CTE pathways in Utah. The team sought to identify the LEAs that had SWD represented in CTE at least equally to their nondisabled peers and, just as importantly, the LEAs that did not as a precursor to exploring interdisciplinary collaboration patterns supporting SWD in CTE. Equal representation was determined by comparing the total percentage of students in CTE pathways to the percentage of SWD in CTE pathways.

Next, to identify why some schools had equal or higher representation of SWD in CTE and some did not, the USBE transition team developed a survey to be sent out to all secondary education professionals. The survey contained questions regarding interdisciplinary communication, teaming, and collaboration practices and barriers to collaboration within the LEA. USBE transition staff plan to review the data to look for patterns of inclusion for students with disabilities in CTE, but formal statistical analysis would offer important insights on factors related to SWD in CTE in the state. For this purpose, I obtained permission to perform a secondary data analysis through the USBE Data and Statistics department as dictated by USBE policies and procedures.
“Both data sets were collected by USBE as part of ongoing efforts to support LEAs in achieving positive postsecondary outcomes for youth with disabilities. The USBE transition team, in partnership with transition professionals from VR, has focused professional learning and technical assistance on improving interagency collaboration in serving postsecondary transition-age youth. Transition planning requirements under IDEA state that other agencies should be invited to postsecondary transition IEP meetings as appropriate to meet the needs of youth as they prepare to transition out of school into adulthood (IDEA, 2004). USBE has developed training materials to support educators in meeting this requirement. In addition to courses offered to individual educators, the annual transition institute has focused on interdisciplinary and interagency collaboration for the past three years in a row. The collaboration survey was developed and disseminated as part of an effort to evaluate if these professional learning opportunities are having a positive impact.

USBE has also focused professional learning and technical assistance on data-based decision making to help LEAs improve their student outcomes. LEAs are expected to use data to evaluate needs and improve services and supports for students with disabilities. Examples of data-based decision-making include evaluating data to aid in choosing appropriate interventions for a student in the multi-tiered system of supports model and using data collected on student’s postsecondary outcomes to help LEAs identify areas of need for postsecondary transition-age youth leaving their setting. To this end, LEA teams attending the annual transition institute are encouraged to bring data from multiple indicators related to transition to support goal setting for their team. The CTE enrollment data set was collected as part of a state-level interagency effort to
examine the utilization of CTE (as an evidence-based predictor of positive postschool outcomes) by SWD in Utah.”

**CTE Enrollment Data Set**

The CTE enrollment data set included aggregate enrollment data for the state as a whole and by LEA for the 2018 and 2019 school years. Variables included (a) the total number of seniors making up the cohort for each year, (b) the number of SWD in the cohort, (c) the percentage of students in the cohort concentrating in CTE pathways, (d) the percentage of students in the cohort completing CTE pathways, (e) the percentage of SWD in the cohort concentrating in CTE pathways, and (f) the percentage of SWD in the cohort completing CTE pathways. See Table 1 for a subsample of the CTE enrollment data set.
Table 1

Subsample of the CTE Enrollment Data Set from USBE

<table>
<thead>
<tr>
<th>Cohort year</th>
<th>LEA</th>
<th>All Students Cohort Size</th>
<th>SWD Cohort Size</th>
<th>SWD As Percent of Cohort</th>
<th>Percent CTE Concentrator All Students</th>
<th>Percent CTE Completer All Students</th>
<th>Percent CTE Concentrator is SWD</th>
<th>Percent CTE Completer is SWD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>LEA 1</td>
<td>102</td>
<td>6</td>
<td>5.9%</td>
<td>51.0%</td>
<td>14.7%</td>
<td>33.3%</td>
<td>16.7%</td>
</tr>
<tr>
<td>2019</td>
<td>LEA 1</td>
<td>116</td>
<td>5</td>
<td>4.3%</td>
<td>62.9%</td>
<td>20.7%</td>
<td>40.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>2018</td>
<td>LEA 2</td>
<td>5,371</td>
<td>460</td>
<td>8.6%</td>
<td>64.0%</td>
<td>19.6%</td>
<td>65.2%</td>
<td>17.0%</td>
</tr>
<tr>
<td>2019</td>
<td>LEA 2</td>
<td>5,588</td>
<td>439</td>
<td>7.9%</td>
<td>57.3%</td>
<td>18.7%</td>
<td>61.5%</td>
<td>17.3%</td>
</tr>
</tbody>
</table>
Survey Measure

The survey contained questions regarding interdisciplinary communication, teaming, and collaboration practices, and barriers to collaboration within the LEA. Questions were created using information on recommended practices for collaboration from current research (Emery, 2019; Frey et al., 2006; Johnson et al., 2003; Schmalzried & Harvey, 2014). Respondents were asked to answer the survey questions retrospectively to the 2018 and 2019 school years (prior to the COVID-19 pandemic). A question was included to identify which respondents were employed by their LEA during this time period for data analysis purposes.

The survey contained six major sections: (a) a Teaming Practices section consisting of five items, (b) a Communication Practices section consisting of 10 items, (c) a CTE Specific Activities section consisting of eight items, (d) a Frequency of Collaboration with Educational Partners section consisting of six items (e) a Barriers to Collaboration section consisting of 15 items, and (f) a Collaborative Practices section consisting of 13 items. The teaming practices, communication practices, and CTE specific activities sections primarily required responses identifying the existence of certain practices with possible responses of yes, no, and I don’t know. A few questions required responses along a scale specifically designed for that question. For example, participants were asked about their frequency of attendance in IEP meetings with responses ranging from I attend to IEP meetings of all SWD I serve/teach to I do not attend the IEP meetings of SWD I teach/serve. Other questions listed a set of communication practices commonly used in LEAs and asked participants to identify the one they used most. Write-in options were also available for these questions. The
frequency of collaboration section required responses on a six-point Likert-type
frequency scale ranging from *Daily* to *Never*. The barriers and collaborative practices
sections required responses on a five-point Likert-type scale ranging from *Almost Always*
to *Never*. See Appendix A for a copy of the survey.

**Sample Characteristics**

The original CTE enrollment data set included all students who were seniors for
the 2018, 2019, and 2020 school years. Seniors were chosen because the intent was to
examine the rate at which students with disabilities concentrated in and completed CTE
pathways. These data are incomplete for school years prior to a student’s senior year. The
2020 school year data were excluded due to a shift in the data trends resulting from the
COVID-19 pandemic. The cohort size for the entire state for 2018 was 42,416 students.
The cohort size for the state for 2019 was 43,051 students. LEAs that did not have CTE
data for both the 2018 and 2019 school years were excluded from this sample. All
excluded LEAs were small charter schools. This excluded CTE enrollment data for 86
students in the 2018 school year and 114 students in the 2019 school year. After
exclusions, the data set contained 85 LEAs consisting of 41 districts and 44 charter
schools.

The survey sample included special educators, CTE teachers, other general
education teachers, school counselors, and administrators in LEAs across the state who
worked in settings serving transition-age (14-21) youth. The minimal target population
for USBE was SPED and CTE professionals, but the interaction between all five
disciplines was of interest. The survey was administered through multiple listservs and
newsletters managed by USBE. State level leadership for all five professional disciplines
targeted participated in disseminating the survey through these existing channels. USBE staff sent out multiple reminders in addition to the initial invitation using the same listservs and newsletters over a period of six weeks. After six weeks, the USBE transition team reviewed the 462 survey responses for a mix of targeted professional disciplines. They reached out to any LEAs that had low response rates for either SPED or CTE professionals as these were the minimal target populations for this survey. They also reached out to large districts that had low response rates overall to encourage their participation in the survey. This individual outreach produced an additional 286 survey responses for a total of 748 responses. The survey was open for 9 weeks. As many professionals as USBE could reach were given the opportunity and encouraged to complete the survey. Since the survey was disseminated through listservs and forwarded to participants through leadership channels, it was not possible to assess how many educators received the opportunity to take the survey. For this reason, an overall survey response rate could not be calculated.

I evaluated the 748 survey responses for eligibility. Ninety-six responses were excluded because the respondents were either elementary school professionals or could not be verified as serving transition-age youth. Next, 164 responses were excluded because the respondents were not employed by their LEA during the time period being assessed. Of the remaining 488 surveys, 59 additional responses were found ineligible. Forty-eight completed the survey only through the demographic questions and 11 were professionals outside the five target groups. After these final exclusions, I had 429 eligible responses with 309 fully completed surveys. This included 146 SPED
professionals, 128 CTE teachers, 57 administrators, 55 school counselors, and 43 other general educators.

**Data Analysis**

**Research Question 1: Most Common Barriers**

I used descriptive statistics and measures of central tendency to identify the most common barriers to collaboration experienced by different education professionals in the state. I first tallied the number of responses for each level of the Likert scale for each barrier listed and considered them by professional discipline. I then rank-ordered responses based on the item mean score for each of the listed barriers. I combined the responses for *Almost Always* and *Often* to represent the barriers identified to the greatest extent. I combined the responses for *Rarely* and *Never* to represent the barriers identified to the least extent. Finally, I calculated the percentage of barriers identified to the greatest extent and the least extent for each professional discipline and for all respondents. I used the percentage of barriers identified to the greatest extent to place the barriers in a final rank order. If there was a tie for ranking, I combined the responses for *Almost Always*, *Often*, and *Sometimes* to break the tie. This rank order swapped two items from the initial ranking using item means. The top three barriers to collaboration were used in the analysis of interdisciplinary collaboration factors for research questions five and six.

**Research Question 2: Most Common Collaborative Practices**

I used descriptive statistics and measures of central tendency to identify the most common collaborative practices used by different education professionals in the state. I first tallied the number of responses for each level of the Likert scale for each collaborative practice listed and considered them by professional discipline. Next, I rank-
ordered responses based on the item mean score for each of the listed practices. I combined the responses for *Almost Always* and *Often* to represent the collaborative practices identified to the greatest extent. I combined the responses for *Rarely* and *Never* to represent the collaborative practices identified to the least extent. Finally, I calculated the percentage of collaborative practices identified to the greatest extent and the least extent for each professional discipline and for all respondents. I used the percentage of collaborative practices identified to the greatest extent to place the collaborative practices in rank order. If there was a tie for ranking, I combined the responses for *Almost Always*, *Often*, and *Sometimes* to break the tie. This rank order also swapped only two items from the initial ranking using item means. The top three collaborative practices were used in the analysis of interdisciplinary collaboration factors for research questions five and six.

**Research Question 3: Frequency of Collaboration**

I used descriptive statistics to identify the frequency of collaboration reported by different education professionals in the state. I tallied the frequencies for collaboration with each discipline as reported by discipline. I then calculated percentages of each frequency level for each professional discipline based on the number of responses by that discipline on the survey. Finally, I put each set of percentages for the different professional disciplines into bar graphs for visual analysis to identify which professional discipline each set of professionals collaborated with most frequently. I also cross-checked between disciplines to look for discrepancies in perception of collaboration frequency between disciplines.

**Research Question 4: Proportion of SWD in CTE by Size and Type of LEA**
To identify the proportion at which LEAs serve SWD in their CTE programs, I began by calculating a measure of proportionality by LEA from the CTE enrollment data set. I calculated the raw difference in percentage between all students concentrating in (three semesters) and completing (six semesters) CTE pathways and SWD concentrating in and completing CTE pathways. I subtracted the total percentage of students concentrating in CTE from the percentage of SWD concentrating in CTE to find the raw difference for each LEA. This is represented by the equation below:

\[
\text{Raw Difference} = \text{Percentage}_{\text{SWDs}} - \text{Percentage}_{\text{All Students}}
\]

A positive number meant that SWD concentrated in CTE at a proportionally higher rate than the general student population. A negative number meant that SWD concentrated in CTE at a proportionally lower rate than the general student population. I performed the same calculation for CTE completion for each LEA.

Next, I assessed the relationship between proportionality value, LEA size (extra-small, small, medium, or large), and LEA type (district or charter) while controlling for the total number of students in the cohort using Analysis of Covariance (ANCOVA). A separate ANOVA was conducted evaluating proportion for concentrators and completers for each variable. LEA size and type were listed in the data set generated by the USBE transition team using the following criteria: extra-small LEAs had a cohort size of less than 50 seniors, small LEAs had a cohort size of 50 to 999 seniors, medium LEAs had a cohort size of 1000 to 1999 seniors, and large LEAs had a cohort size of 2000 or more seniors.

I was concerned that data from extra small LEAs would skew the results. Since proportion was reported in percentages, small differences in totals represented large
percentage differences. This would make accurate comparisons with larger LEAs challenging. Therefore, I performed a robustness check by running the ANOVA excluding extra-small LEAs. Using this exclusion criterion, data from 17 charter schools and five school districts were excluded. The robustness check showed that the data from extra-small LEAs were having a significant impact on the results by showing no variables as significant, so they were excluded from all further analysis. The remaining data set contained 63 LEAs consisting of 36 districts and 27 charter schools.

**Research Question 5: Collaboration Factors Predicting Proportion of SWD in CTE**

I ran a series of simple regressions (Darlington & Hayes, 2017) to identify how factors of collaboration predict the proportion of SWD concentrating in and completing CTE pathways. The factors from the survey I analyzed were: (a) SWD completing their College and Career Readiness (CCR) plan with a school counselor, (b) the existence of a formal interdisciplinary transition team in the LEA, (c) the practice of co-teaching, (d) attendance and participation of different professionals in IEP meetings, (e) the three barriers to collaboration identified to the greatest extent, and (f) the three collaboration practices identified to the greatest extent. I ran one regression per factor exploring how they predicted concentration in CTE pathways and one per factor exploring how they predicted completion of CTE pathways.

Since survey data were individual-level data and proportion measures were aggregated LEA-level data, I merged the two data sets in the statistical software R to make these comparisons. This analysis only included LEAs with data in both the CTE enrollment and survey data sets. Using this criterion, I excluded 11 additional survey responses from eight charter schools. As stated before, extra-small LEAs were excluded.
I also excluded LEAs whose population was primarily SWD because their percentage of SWD was positively skewed and was not comparable to fully integrated LEAs. Implementing this exclusion criterion eliminated five survey responses from one charter school whose charter is to serve SWD and two survey responses from the State school for the deaf and blind.

For this analysis, I also ran separate regressions based on the size of the LEA to improve the accuracy of the comparison. One regression included all responses from large and medium sized LEAs and one included all responses from small LEAs. The large and medium LEA subset consisted of 12 districts. The small LEA subset consisted of 24 districts and all 27 charter schools.

**Research Question 6: Collaboration Factors Predicting Access for SWD to CTE**

I used descriptive statistics to identify patterns of perspective by each professional discipline regarding the level of access SWD have in CTE. I tallied the survey responses from the following scale by professional discipline:

- SWD have the same access to CTE as their non-disabled peers.
- SWD have less access to CTE than their non-disabled peers.
- SWD have more access to CTE than their non-disabled peers.
- I do not have any knowledge or experience with SWD in CTE in my school.

Next, I calculated the percentage of each response for each professional discipline. Subsequently, I ran a series of chi-square tests to assess the relationship between the collaboration factors listed above for research question five and the responses given about the level of access SWD have in CTE. I ran one chi-square test and plotted the responses.
for each collaboration factor. For factors that showed a statistically significant relationship to level of CTE access, I reviewed the plot to identify the pattern of the relationship. Table 2 provides a summary of data analysis procedures.
Table 2

Summary of Data Analysis Procedures

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Research Question</th>
<th>Statistical Analysis Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What are the most common barriers to collaboration experienced by different education professionals in co-serving SWD?</td>
<td>Frequencies, Percentages, and Measures of Central Tendency</td>
</tr>
<tr>
<td>2</td>
<td>What are the most common collaborative practices used by different education professionals in co-serving SWD?</td>
<td>Frequencies, Percentages, and Measures of Central Tendency</td>
</tr>
<tr>
<td>3</td>
<td>What is the frequency of collaboration with interdisciplinary education partners for different education professionals?</td>
<td>Frequencies, Percentages, and Visual analysis</td>
</tr>
<tr>
<td>4</td>
<td>Is there a relationship between the size and type of the LEA and the proportion of SWD concentrating in or completing CTE pathways when controlling for the proportion of all students concentrating in or completing CTE pathways?</td>
<td>ANCOVA</td>
</tr>
<tr>
<td>5</td>
<td>What interdisciplinary collaboration factors predict the proportion of SWD concentrating in or completing CTE pathways?</td>
<td>Linear Regression</td>
</tr>
<tr>
<td>6</td>
<td>What interdisciplinary collaboration factors are related to access to CTE for SWD?</td>
<td>Frequencies, Percentages, and Chi-square</td>
</tr>
</tbody>
</table>
Ethical Considerations

Potentially identifying information was collected as part of the demographic portion of the survey. Participants were asked to identify their professional discipline and the name of the LEA for which they work. Large LEAs with multiple respondents are diluted enough that it is difficult to identify a single respondent based on this information. Small LEAs present a potential risk for respondents to be identified due to a smaller number of professionals that match the information provided. LEA names were deidentified to numbers before reporting the data to mitigate this risk.

A second consideration is that I, as the primary researcher, am a member of the USBE transition team and could be seen as being in a position of influence. Although I am a member of the team that monitors some aspects of IDEA compliance, my job duties do not include anything that could impact LEAs’ monitoring results. I am not participating in any monitoring or evaluation of LEA compliance in my position with USBE for the foreseeable future. Also, by disseminating the survey through listservs and newsletters instead of emailing the survey out from my position as a transition specialist for the state, I was able to dilute the risk of educators viewing this survey as a mandatory activity.
Chapter IV

Results

I received 748 survey responses with 429 (57.4%) meeting eligibility criteria. Of the 429 eligible responses, there were 312 (72.7%) fully completed surveys. The remaining 117 eligible surveys showed a clear pattern of attrition to explain missing responses. Respondents tended to stop at the end of a full section. Table 3 shows the patterns of attrition for the surveys with missing data. Although there were occasional skipped questions in several surveys, there were no questions on the survey that were skipped consistently by respondents aside from this pattern.
Table 3

*Number and Percentage of Respondents Ending Survey Participation by Survey Section*

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>% of the survey</td>
<td>25%</td>
<td>39%</td>
<td>64%</td>
<td>75%</td>
<td>78%</td>
<td>86%</td>
<td>100%</td>
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<tr>
<td>completed at the end</td>
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<td></td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of</td>
<td>36</td>
<td>16</td>
<td>8</td>
<td>12</td>
<td>15</td>
<td>30</td>
<td>312</td>
</tr>
<tr>
<td>respondents</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>stopping after this</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>section</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of total</td>
<td>8%</td>
<td>4%</td>
<td>2%</td>
<td>3%</td>
<td>3%</td>
<td>7%</td>
<td>73%</td>
</tr>
<tr>
<td>respondents</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>stopping at this</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>point</td>
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</tr>
</tbody>
</table>
Research Question 1: Most Common Barriers to Collaboration

The three most common barriers to collaboration reported by survey respondents were (a) lack of time to collaborate, (b) lack of resources to collaborate, and (c) lack of regular, succinct communication. Lack of time to collaborate had a mean score of 2.80 out of 5, with lower scores reflecting greater barriers. A total of 42% of respondents rated that they observe this barrier often or almost always and 72% of respondents rated this barrier at least sometimes. The group that reported this barrier to the greatest extent was CTE teachers. The group that reported this barrier to the least extent was school counselors. Lack of resources to collaborate had a mean score of 3.23 with 25% of survey respondents rating that they observe this barrier often or almost always and 59% of respondents rating this barrier at least sometimes. The groups that reported this barrier to the greatest extent were SPED and CTE. The group that reported this practice to the least extent was school counselors. Lack of regular, succinct communication had a mean score of 3.32, with 20% of survey respondents rating that they observe this barrier often or almost always and 56% of respondents rating this barrier at least sometimes. The group that reported this barrier to the greatest extent was general educators other than CTE. The group that reported this barrier to the least extent was school counselors. The full list of barriers to collaboration in ranked order can be found in Table 4. As a group, school counselors reported experiencing barriers to the least extent and CTE and other general educators reported experiencing barriers to the greatest extent.
Table 4

Barriers to Collaboration Reported by Survey Respondents in Rank Order

<table>
<thead>
<tr>
<th>Rank</th>
<th>Barrier</th>
<th>Mean Score</th>
<th>% Often or AA</th>
<th>% Some to AA</th>
<th>Group that reported the greatest extent</th>
<th>Group that reported the least extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of time to collaborate</td>
<td>2.80</td>
<td>42%</td>
<td>72%</td>
<td>CTE Teachers</td>
<td>School Counselors</td>
</tr>
<tr>
<td>2</td>
<td>Lack of resources to collaborate</td>
<td>3.23</td>
<td>25%</td>
<td>59%</td>
<td>SPED &amp; CTE Teachers</td>
<td>Other General Educators</td>
</tr>
<tr>
<td>3</td>
<td>Lack of regular, succinct communication</td>
<td>3.32</td>
<td>20%</td>
<td>56%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
</tr>
<tr>
<td>4</td>
<td>Insufficient professional learning regarding co-serving SWD</td>
<td>3.34</td>
<td>18%</td>
<td>56%</td>
<td>CTE Teachers</td>
<td>School Counselors</td>
</tr>
<tr>
<td>5 &amp; 6</td>
<td>Lack of understanding of each professional's roles &amp; responsibilities</td>
<td>3.43</td>
<td>19%</td>
<td>49%</td>
<td>CTE Teachers</td>
<td>School Counselors</td>
</tr>
<tr>
<td></td>
<td>System barriers (e.g., administrative expectations, processes, contract time limitations)</td>
<td>3.43</td>
<td>19%</td>
<td>49%</td>
<td>CTE Teachers</td>
<td>School Counselors</td>
</tr>
<tr>
<td>7</td>
<td>Insufficient professional learning regarding other professions</td>
<td>3.46</td>
<td>17%</td>
<td>49%</td>
<td>CTE Teachers</td>
<td>School Counselors</td>
</tr>
</tbody>
</table>

Note. AA refers to Almost Always on the rating scale.
Table 4 (continued)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Barrier</th>
<th>Mean Score</th>
<th>% Often or AA</th>
<th>% Some to AA</th>
<th>Group that reported the greatest extent</th>
<th>Group that reported the least extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Confusion about whose responsibility it is to initiate communication</td>
<td>3.46</td>
<td>17%</td>
<td>48%</td>
<td>CTE Teachers</td>
<td>School Counselors</td>
</tr>
<tr>
<td>9</td>
<td>Lack of common vision and goals</td>
<td>3.55</td>
<td>15%</td>
<td>43%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
</tr>
<tr>
<td>10</td>
<td>Lack of accountability</td>
<td>3.56</td>
<td>14%</td>
<td>43%</td>
<td>SPED &amp; Gen Ed Teachers</td>
<td>School Counselors</td>
</tr>
<tr>
<td>11</td>
<td>Weak working relationships between disciplines</td>
<td>3.58</td>
<td>14%</td>
<td>43%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
</tr>
<tr>
<td>12</td>
<td>Territoriality or turf issues</td>
<td>3.91</td>
<td>10%</td>
<td>31%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
</tr>
<tr>
<td>13</td>
<td>Lack of trust (e.g., unsafe to ask questions, feeling exposed or vulnerable)</td>
<td>3.91</td>
<td>10%</td>
<td>30%</td>
<td>SPED Teachers</td>
<td>School Counselors</td>
</tr>
<tr>
<td>14</td>
<td>Lack of commitment to collaborative practices from leadership</td>
<td>3.86</td>
<td>9%</td>
<td>31%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
</tr>
<tr>
<td>15</td>
<td>Disrespect between professionals (e.g., judgement, assuming ill intent, rudeness)</td>
<td>4.05</td>
<td>7%</td>
<td>24%</td>
<td>SPED Teachers</td>
<td>Administrators</td>
</tr>
</tbody>
</table>
Research Question 2: Most Common Collaborative Practices

The three most common collaborative practices reported by survey respondents were (a) professionals exhibiting a willingness to work together, (b) professionals showing a willingness to share ideas and learn from each other, and (c) professionals engaging in informal information sharing regarding SWD being co-served. Professionals exhibiting a willingness to work together had a mean score of 1.87 out of 5, with lower scores reflecting greater levels of collaborative practices. A total of 78% of respondents rated that they observe this practice often or almost always and 96% of respondents rated this practice at least sometimes. The group that reported this practice to the greatest extent was school counselors. The group that reported this practice to the least extent was general educators other than CTE. Professionals showing a willingness to share ideas and learn from each other had a mean score of 2.10, with 70% of survey respondents rating that they observe this practice often or almost always and 96% of respondents rating this practice at least sometimes. The group that reported this practice to the greatest extent was school counselors. The group that reported this practice to the least extent was general educators other than CTE. Professionals engaging in informal information sharing regarding SWD being co-served had a mean score of 2.12, with 69% of survey respondents rating that they observe this practice often or almost always and 95% of respondents rating this practice at least sometimes. The group that reported this practice to the greatest extent was school counselors. The group that reported this practice to the least extent was general educators other than CTE. The full list of collaborative practices in ranked order can be found in Table 5. As a group, school counselors reported
experiencing collaborative practices to the greatest extent and other general educators reported experiencing collaborative practices to the least extent.
Table 5

*Collaborative Practices Reported by Survey Respondents in Rank Order*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Barrier</th>
<th>Mean Score</th>
<th>% Often or AA</th>
<th>% Some to AA</th>
<th>Group that reported the least extent</th>
<th>Group that reported the greatest extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Professionals exhibit a willingness to work together</td>
<td>1.87</td>
<td>78%</td>
<td>96%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
</tr>
<tr>
<td>2</td>
<td>Professionals show a willingness to share ideas and learn from each other</td>
<td>2.10</td>
<td>70%</td>
<td>94%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
</tr>
<tr>
<td>3</td>
<td>Professionals engage in INFORMAL information sharing regarding SWD co-served</td>
<td>2.12</td>
<td>69%</td>
<td>95%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
</tr>
<tr>
<td>4</td>
<td>Professionals exhibit a willingness to change / compromise when needed</td>
<td>2.20</td>
<td>65%</td>
<td>94%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
</tr>
<tr>
<td>5</td>
<td>Leadership from key decision makers offers strong support for collaboration</td>
<td>2.33</td>
<td>60%</td>
<td>88%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
</tr>
<tr>
<td>6</td>
<td>Professionals engage in regular, succinct communication regarding SWD</td>
<td>2.35</td>
<td>59%</td>
<td>87%</td>
<td>CTE Teachers</td>
<td>Administrators</td>
</tr>
</tbody>
</table>

*Note. AA refers to Almost Always on the rating scale.*
<table>
<thead>
<tr>
<th>Rank</th>
<th>Barrier</th>
<th>Mean Score</th>
<th>% Often or AA</th>
<th>% Some to AA</th>
<th>Group that reported the least extent</th>
<th>Group that reported the greatest extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Professionals exhibit a shared commitment to serving SWD in CTE</td>
<td>2.35</td>
<td>58%</td>
<td>87%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
</tr>
<tr>
<td>8</td>
<td>Professionals engage in FORMAL information sharing regarding SWD co-</td>
<td>2.4</td>
<td>55%</td>
<td>89%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
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<td></td>
<td>served</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Professionals build strong working relationships between disciplines</td>
<td>2.39</td>
<td>54%</td>
<td>89%</td>
<td>Other General Educators</td>
<td>Administrators</td>
</tr>
<tr>
<td></td>
<td>Professionals seek to understand the culture and expectations of each</td>
<td>2.48</td>
<td>53%</td>
<td>86%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
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<tr>
<td></td>
<td>other's disciplines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Professionals exhibit a common vision for how SWD participate in CTE</td>
<td>2.52</td>
<td>52%</td>
<td>83%</td>
<td>Other General Educators</td>
<td>Administrators</td>
</tr>
<tr>
<td></td>
<td>Adequate resources are provided for collaboration between professional</td>
<td>2.52</td>
<td>50%</td>
<td>84%</td>
<td>CTE Teachers</td>
<td>School Counselors</td>
</tr>
<tr>
<td></td>
<td>disciplines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Professionals engage in deliberate preplanning before meeting to discuss</td>
<td>2.59</td>
<td>47%</td>
<td>80%</td>
<td>Other General Educators</td>
<td>School Counselors</td>
</tr>
<tr>
<td></td>
<td>SWD</td>
<td></td>
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</tr>
</tbody>
</table>
Research Question 3: Frequency of Collaboration

Special Educators

Special educators reported collaborating with administrators most frequently, with 70% of respondents reporting collaboration at least weekly, 20% reporting collaboration monthly, and 7% reporting quarterly collaboration. The next most frequent collaboration was with other general educators, with 70% of respondents reporting collaboration at least weekly, 13% reporting collaboration monthly, and 10% reporting quarterly collaboration. The next most frequent collaboration was with school counselors, with 57% of respondents reporting collaboration at least weekly, 19% reporting collaboration monthly, and 14% reporting quarterly collaboration. Special educator collaboration with CTE teachers was more varied with 30% of respondents reporting collaboration at least weekly, 26% reporting collaboration monthly, 19% reporting collaboration quarterly, and 18% reporting they do not ever collaborate with CTE.

Special educators reported collaborating least frequently with outside agencies. For collaboration with VR, 6% of SPED respondents reported weekly collaboration, 12% reported monthly collaboration, 17% reported quarterly collaboration, 31% reported annual collaboration, and 34% reported never collaborating with VR. For collaboration with other community rehabilitation providers (CRPs), 8% of SPED respondents reported weekly collaboration, 11% reported monthly collaboration, 7% reported quarterly collaboration, 26% reported annual collaboration, and 46% reported never collaborating with CRPs. Even with these low frequencies, special educators reported collaborating with outside agencies the most of all five professional disciplines surveyed. Figure 1 shows the frequency of reported SPED collaboration with each discipline.
**Figure 1**

*Frequency of Collaboration with Other Disciplines as Reported by SPED Teachers*

![Collaboration Frequencies for SPED](image-url)

### Career and Technical Educators

Career and technical educators reported collaborating with other disciplines at a more varied rate across the board. They reported collaboration with general educators most frequently, with 32% of CTE respondents reporting collaboration at least weekly, 25% reporting collaboration monthly, 15% reporting collaboration quarterly, 12% reporting collaboration annually, and 13% reporting they never collaborate with other general educators. The next most frequent collaboration was with SPED, with 28% of respondents reporting collaboration at least weekly, 30% reporting collaboration monthly, 27% reporting collaboration quarterly, 10% reporting collaboration annually, and 6% reporting they never collaborate with SPED. The next most frequent collaboration was with school counselors, with 25% of CTE respondents reporting...
collaboration at least weekly, 29% reporting collaboration monthly, 21% reporting collaboration quarterly, 10% reporting collaboration annually, and 12% reporting they never collaborate with school counselors. Of the professionals within the school, CTE teachers reported collaborating with administrators the least with 22% of CTE respondents reporting collaboration at least weekly, 27% reporting collaboration monthly, 13% reporting collaboration quarterly, 12% reporting collaboration annually, and 23% reporting they never collaborate with school counselors. CTE teachers reported little to no collaboration with outside agencies. For collaboration with VR, no CTE respondents reported weekly collaboration, 3% reported monthly collaboration, 7% reported quarterly collaboration, 6% reported annual collaboration, and 78% reported never collaborating with VR. For collaboration with other CRPs, 2% of CTE respondents reported weekly collaboration, 1% reported monthly collaboration, 4% reported quarterly collaboration, 8% reported annual collaboration, and 78% reported never collaborating with CRPs. Figure 2 shows the frequency of reported CTE collaboration with each discipline.
**Other General Educators**

Other general educators reported collaborating with SPED most frequently with 64% of respondents reporting collaboration at least weekly, 14% reporting collaboration monthly, 8% reporting collaboration quarterly, 8% reporting collaboration annually, and 3% reporting they never collaborate with SPED. The next most frequent collaboration was with administrators with 33% of respondents reporting collaboration at least weekly, 22% reporting collaboration monthly, 11% reporting collaboration quarterly, 11% reporting collaboration annually, and 26% reporting they never collaborate with administrators. The next most frequent collaboration was with school counselors with 22% of respondents reporting collaboration at least weekly, 28% reporting collaboration monthly, 19% reporting collaboration quarterly, 17% reporting collaboration annually,
and 14% reporting they never collaborate with school counselors. Of the professionals within the school, other general educators reported collaborating with CTE the least with 25% of respondents reporting collaboration at least weekly, 6% reporting collaboration monthly, 8% reporting collaboration quarterly, 6% reporting collaboration annually, and 50% reporting they never collaborate with CTE.

General educators also reported little to no collaboration with outside agencies. For collaboration with VR, no general educator respondents reported weekly collaboration, 6% reported monthly collaboration, 3% reported quarterly collaboration, 11% reported annual collaboration, and 75% reported never collaborating with VR. For collaboration with other CRPs, no general educator respondents reported weekly collaboration, 8% reported monthly collaboration, 3% reported quarterly collaboration, 11% reported annual collaboration, and 72% reported never collaborating with CRPs. Figure 3 shows the frequency of reported general educator collaboration with each discipline.
Figure 3

*Frequency of Collaboration with Other Disciplines as Reported by General Education Teachers Other Than CTE.*

![Collaboration Frequencies for Other Gen Ed](image)

**School Counselors**

School counselors reported the most frequent interdisciplinary collaboration of all other professional disciplines. School counselors reported collaborating with administrators most frequently with 93% of respondents reporting collaboration at least weekly, 5% reporting collaboration monthly, and 2% reporting collaboration annually. The next most frequent collaboration for school counselors was with SPED with 86% of respondents reporting collaboration at least weekly, 10% reporting collaboration monthly, and 5% reporting collaboration quarterly. The next most frequent collaboration was with other general educators with 60% of respondents reporting collaboration at least weekly, 38% reporting collaboration monthly, and 2% reporting collaboration annually.
Of the professionals within the school, school counselors reported collaborating with CTE the least with 50% of respondents reporting collaboration at least weekly, 40% reporting collaboration monthly, 5% reporting collaboration quarterly, and 5% reporting collaboration annually.

School counselors reported more frequent collaboration with outside agencies than both sets of general educators, but less frequent than special educators. For collaboration with VR, 2% of respondents reported weekly collaboration, 5% reported monthly collaboration, 7% reported quarterly collaboration, 31% reported annual collaboration, and 48% reported never collaborating with VR. For collaboration with other CRPs, no school counselors reported weekly collaboration, 7% reported monthly collaboration, 12% reported quarterly collaboration, 24% reported annual collaboration, and 50% reported never collaborating with CRPs. Figure 4 shows the frequency of reported school counselor collaboration with each discipline.
Administrators reported collaborating with SPED most frequently with 83% of respondents reporting collaboration at least weekly, 5% reporting collaboration monthly, 2% reporting collaboration quarterly, 2% reporting collaboration annually, and no administrators reporting they never collaborate with SPED. The next most frequent collaboration was with school counselors with 69% of respondents reporting collaboration at least weekly, 12% reporting collaboration monthly, 7% reporting collaboration quarterly, 2% reporting collaboration annually, and 5% reporting they never collaborate with school counselors. The next most frequent collaboration was with other general educators with 60% of respondents reporting collaboration at least weekly, 21% reporting collaboration monthly, 2% reporting collaboration quarterly, 5% reporting
collaboration annually, and 7% reporting they never collaborate with other general educators. Of the professionals within the school, administrators reported collaborating with CTE the least with 43% of respondents reporting collaboration at least weekly, 21% reporting collaboration monthly, 5% reporting collaboration quarterly, 7% reporting collaboration annually, and 10% reporting they never collaborate with CTE.

Administrators reported collaboration with outside agencies at a similar rate to SPED. For collaboration with VR, 5% of administrator respondents reported weekly collaboration, 12% reported monthly collaboration, 21% reported quarterly collaboration, 17% reported annual collaboration, and 33% reported never collaborating with VR. For collaboration with other CRPs, 7% of administrator respondents reported weekly collaboration, 2% reported monthly collaboration, 21% reported quarterly collaboration, 19% reported annual collaboration, and 36% reported never collaborating with CRPs. Figure 5 shows the frequency of reported administrator collaboration with each discipline.
Research Question 4: Proportion of SWD in CTE by Size and Type of LEA

An ANCOVA was conducted to examine the relationship between proportionality value, LEA size, and LEA type while controlling for the total number of students in the cohort. The results of the ANCOVA showed that LEA type was a statistically significant variable in predicting the proportion of SWD concentrating in CTE pathways when controlling for the overall proportion of students concentrating in CTE pathways ($p = .021$). LEA type was not identified as a statistically significant variable in predicting the proportion of SWD completing CTE pathways when controlling for the overall proportion of students completing CTE pathways ($p = .680$). The LEA size was not identified as a statistically significant variable in predicting the proportion of SWD concentrating in or completing CTE pathways when controlling for the overall proportion.
of students concentrating in or completing CTE pathways with $p$-values of .568 and .878 respectively. I performed a post hoc pairwise contrast to explore the differences in proportion of students concentrating in CTE pathways for LEA type. Students were more likely to be better represented in concentrating in CTE pathways in districts than charters ($p=.017$).

**Research Question 5: Collaboration Factors Predicting Proportion of SWD in CTE**

The existence of a formal interdisciplinary transition team in the LEA was a statistically significant variable in predicting the proportion of SWD completing CTE pathways ($p = .033$) for the full data set. To check for the possibility of the smallest LEAs being overly influential on the data, I ran the regression again with only the large and medium LEAs. The $p$-value was unchanged at .033. A formal transition team was not a statistically significant predictor of SWD completing CTE pathways among the small LEA data subset ($p = .642$) as it was in the for the full data set. The existence of a formal interdisciplinary transition team in the LEA was not a statistically significant variable in predicting the proportion of SWD concentrating in CTE pathways with a $p$-value of .538 for the full data set. The data remained above the level of significance for both regressions for the large and medium LEA data subset and the small LEA data subset. I ran a post hoc pairwise contrast to explore the differences in proportion of students completing CTE pathways for this variable. Students in large or medium LEAs were better represented in completing CTE pathways when respondents answered that they had a formal transition team ($p = .009$) versus when they had no formal transition team.

The practice of co-teaching was a statistically significant variable in predicting the proportion of SWD concentrating in ($p = .008$) and completing ($p = .005$) CTE
pathways in the full data set. The $p$-values were the same when I ran the regression on the large and medium LEA data subset only. The practice of co-teaching was not a statistically significant variable for the small LEA data subset for CTE concentrators ($p = .114$) or completers ($p = .243$). I ran a post hoc pairwise contrast to explore the differences in proportion of students concentrating in and completing CTE pathways for this variable. Students were better represented in concentrating in and completing CTE pathways in large or medium-sized LEAs if respondents answered that co-teaching was practiced in their LEA with $p$-values of 0.002 and 0.001 respectively when compared to no co-teaching practices.

The practice of attending IEP meetings was a statistically significant variable in predicting the proportion of SWD completing CTE pathways with a $p$-value of .028 for the full data set. The practice of attending IEP meetings was a statistically significant variable in predicting the proportion of SWD completing CTE pathways for both the large and medium LEA subset ($p = .044$) and the small LEA subset ($p = .013$). The practice of attending IEP meetings was not a statistically significant variable in predicting the proportion of SWD concentrating in CTE pathways with a $p$-value of .308 for the full data set. The data remained above the level of statistical significance for both regressions for the large and medium LEA subset and the small LEA subset. I ran a post hoc pairwise contrast to explore the differences in proportion of students completing CTE pathways for this variable. Students were more likely to be underrepresented in completing CTE pathways if respondents answered that they do not attend IEP meetings of the SWD they teach or serve, with a $p$-value of .005 when compared to attending most IEPs and a $p$-value of .004 when compared to attending all IEPs. Students were better represented in
completing CTE pathways if respondents answered that they attend some IEPs ($p < .001$) when compared to not attending IEP meetings of the SWD they teach or serve.

None of the top three barriers or collaborative practices identified by survey respondents were found to be statistically significant variables in predicting the proportion of SWD concentrating in or completing CTE pathways for the full data set. They remained above the level of significance for both regressions for the large and medium LEA subset and the small LEA subset. With the top three barriers and practices showing no statistically significant results, I analyzed the remainder of the barriers and collaborative practices and found two statistically significant results. The barrier of lack of trust was a statistically significant variable in predicting the proportion of SWD completing CTE pathways with a $p$-value of .038 for the large and medium LEA subset only. The practice of leadership support of collaboration was a statistically significant variable in predicting the proportion of SWD concentrating in CTE pathways with a $p$-value of .048 for the large and medium LEA subset only.

**Research Question 6: Collaboration Factors Predicting Access for SWD to CTE**

Respondents of all professional disciplines reported that SWD have the same access to CTE as their non-disabled peers most frequently with 246 out of 327 (75.23%) respondents answering in this manner. Only two CTE teachers and one school counselor reported that SWD have more access to CTE than their non-disabled peers. Thirteen CTE teachers and 11 SPED professionals reported that SWD have less access to CTE than their non-disabled peers. General educators were most likely to report not having any knowledge of or experience with SWD in CTE, with 14 out of 32 responding in this manner. Figure 6 shows the percentages of responses for each discipline.
I found a statistically significant relationship between level of access to CTE for SWD and CCR planning with a school counselor with a $p$-value of .004. When I examined the contingency table and plotted the responses in a bar plot, I found that those who answered *I don’t know* regarding level of access for SWD to CTE were also more likely to answer *I don’t know* about whether SWD do their CCR planning with a school counselor. If respondents answered *more access, less access, or same access* regarding SWD in CTE, they were more likely to respond *yes* about whether SWD do their CCR planning with a school counselor. To investigate whether there was a relationship between the three answers related to a “yes” on CCR planning, I removed the category of *I don’t know* and ran the chi-square again. With *I don’t know* removed, there was no
longer a statistically significant relationship present between level of access and CCR planning with a school counselor.

I also found a statistically significant relationship between level of access to CTE for SWD and having a formal transition team in the LEA with a \( p \)-value of 0.031. As with CCR planning, when I examined the contingency table and plotted the responses in a bar plot, I found that those who answered \( I \ don't \ know \) regarding level of access for SWD to CTE were also more likely to answer \( I \ don't \ know \) about whether SWD do their CCR planning with a school counselor. If respondents answered \textbf{more access, less access,} or \textbf{same access} regarding SWD in CTE, they were more likely to respond “yes” about whether SWD do their CCR planning with a school counselor. To investigate whether there was a relationship between the three answers related to a yes on CCR planning, I removed the category of \( I \ don't \ know \) and ran the chi-square again. With \( I \ don't \ know \) removed there was no longer a statistically significant relationship present between level of access and CCR planning with a school counselor.

I found a statistically significant relationship between level of access to CTE for SWD and the barrier \textit{lack of communication} with a \( p \)-value of .011. To identify the pattern of the relationship, I examined the data in a contingency table and in a bar plot. I found that those who answered SWD have the same access to CTE as their non-disabled peers were more likely to report communication being a barrier sometimes or rarely. Those who answered SWD have less access to CTE as their non-disabled peers were more likely to report communication being a barrier often. There were only two out of 327 responses stating SWD had more access to CTE than their non-disabled peers so there was not enough data to identify patterns with that response. Table 6 shows the
contingency table for responses to the level of access and the extent to which lack of communication is experienced as a barrier.

Table 6

Contingency Table of Responses for Level of Access to CTE for SWD and the Ratings for the Barrier of Lack of Communication

<table>
<thead>
<tr>
<th>Barrier of Communication (Horizontal) and Perceived Access to CTE (Vertical)</th>
<th>Almost Always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Don’t Know</td>
<td>3 (21%)</td>
<td>9 (18%)</td>
<td>12 (11%)</td>
<td>9 (10%)</td>
<td>5 (17%)</td>
</tr>
<tr>
<td>Less Access</td>
<td>4 (29%)</td>
<td>11 (22%)</td>
<td>8 (7%)</td>
<td>5 (5%)</td>
<td>2 (6%)</td>
</tr>
<tr>
<td>Same Access</td>
<td>7 (50%)</td>
<td>30 (60%)</td>
<td>87 (80%)</td>
<td>80 (85%)</td>
<td>23 (77%)</td>
</tr>
<tr>
<td>More Access</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>2 (2%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

I found a statistically significant relationship between level of access to CTE for SWD and the collaborative practice of willingness to work together with a p-value of .006. To identify the pattern of the relationship, I examined the data in a contingency table and in a bar plot. I found that those who answered SWD have the same access to CTE as their non-disabled peers were more likely to report experiencing a willingness for professionals to work together almost always. Those who answered SWD have less access to CTE as their non-disabled peers were more likely to report experiencing a willingness for professionals to work together sometimes or rarely. Table 7 shows the contingency table for responses to the level of access and the extent to which willingness to work together is experienced as a collaborative practice.
Table 7

Contingency Table of Responses for Level of Access to CTE for SWD and the Ratings for the Practice of Willingness to Work Together

<table>
<thead>
<tr>
<th>Willingness to Work Together (Horizontal) and Perceived Access to CTE (Vertical)</th>
<th>Almost Always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Don’t Know</td>
<td>8 (8%)</td>
<td>8 (8%)</td>
<td>8 (15%)</td>
<td>3 (38%)</td>
<td>2 (50%)</td>
</tr>
<tr>
<td>Less Access</td>
<td>4 (4%)</td>
<td>11 (11%)</td>
<td>10 (20%)</td>
<td>2 (25%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Same Access</td>
<td>84 (87%)</td>
<td>80 (80%)</td>
<td>33 (65%)</td>
<td>3 (38%)</td>
<td>2 (50%)</td>
</tr>
<tr>
<td>More Access</td>
<td>1 (1%)</td>
<td>1 (1%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

I found a statistically significant relationship between level of access to CTE for SWD and the collaborative practice of willingness to share ideas with a p-value less than .001. To identify the pattern of the relationship, I examined the data in a contingency table and in a bar plot. I found that those who answered SWD have the same access to CTE as their non-disabled peers were more likely to report experiencing a willingness for professionals to share ideas often or almost always. Those who answered SWD have less access to CTE than their non-disabled peers were more likely to report experiencing a willingness for professionals to share ideas sometimes or rarely. Table 8 shows the contingency table for responses to the level of access and the extent to which willingness to share ideas is experienced as a collaborative practice.
Table 8

*Contingency Table of Responses for Level of Access to CTE for SWD and the Ratings for the Practice of Willingness to Share Ideas*

<table>
<thead>
<tr>
<th>Willingness to Share Ideas (Horizontal) and Perceived Access to CTE (Vertical)</th>
<th>Almost Always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Don’t Know</td>
<td>6 (10%)</td>
<td>9 (7%)</td>
<td>8 (12%)</td>
<td>5 (46%)</td>
<td>2 (50%)</td>
</tr>
<tr>
<td>Less Access</td>
<td>5 (8%)</td>
<td>7 (6%)</td>
<td>11 (16%)</td>
<td>4 (36%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Same Access</td>
<td>49 (82%)</td>
<td>101 (85%)</td>
<td>48 (72%)</td>
<td>2 (18%)</td>
<td>2 (50%)</td>
</tr>
<tr>
<td>More Access</td>
<td>0 (0%)</td>
<td>2 (2%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

I found a statistically significant relationship between level of access to CTE for SWD and the collaborative practice of *informal communication* with a *p*-value of 0.001. To identify the pattern of the relationship I examined the data in a contingency table and in a bar plot. I found that those who answered SWD have the same access to CTE as their non-disabled peers were more likely to report experiencing informal communication between professional disciplines often or almost always. Those who answered SWD have less access to CTE as their non-disabled peers were more likely to report experiencing informal communication between professional disciplines sometimes or rarely. Table 9 shows the contingency table for responses to the level of access and the extent to which *informal communication* is experienced as a collaborative practice.
**Table 9**

*Contingency Table of Responses for Level of Access to CTE for SWD and the Ratings for the Practice of Informal Communication*

<table>
<thead>
<tr>
<th>Informal Communication (Horizontal) and Perceived Access to CTE (Vertical)</th>
<th>Almost Always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Don’t Know</td>
<td>6 (11%)</td>
<td>7 (6%)</td>
<td>10 (13%)</td>
<td>5 (46%)</td>
<td>2 (50%)</td>
</tr>
<tr>
<td>Less Access</td>
<td>4 (7%)</td>
<td>9 (8%)</td>
<td>10 (13%)</td>
<td>3 (27%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Same Access</td>
<td>47 (82%)</td>
<td>95 (84%)</td>
<td>55 (73%)</td>
<td>3 (27%)</td>
<td>2 (50%)</td>
</tr>
<tr>
<td>More Access</td>
<td>0 (0%)</td>
<td>2 (2%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

I found no statistically significant relationship between level of access to CTE for SWD and the presence of co-teaching with a $p$-value of 0.176. I found no statistically significant relationship between level of access to CTE for SWD and attendance at IEP meetings with a $p$-value of 0.266. I found no statistically significant relationship between level of access to CTE for SWD and the barrier of *lack of time* with a $p$-value of 0.073. Lastly, I found no statistically significant relationship between level of access to CTE for SWD and the barrier of *lack of resources* with a $p$-value of 0.064.
CHAPTER V

DISCUSSION

This exploratory study sought to examine the collaboration practices among education professionals serving transition-age SWD as they relate to enrollment of SWD in CTE pathways. Six research questions addressed barriers to collaboration, collaborative practices, frequency of collaboration with interdisciplinary education partners for different education professionals, relationships between LEA variables and proportions of students participating in CTE, predictors of the proportions of SWD concentrating in or completing CTE, and interdisciplinary collaboration factors related to access to CTE. A secondary analysis revealed several findings as described in the last chapter. Overall, results provided insights into variables affecting the representation of SWD in CTE pathways and collaboration between education professionals in Utah.

Barriers to Collaboration and Frequency of Collaboration

The three most common collaboration barriers were lack of time to collaborate, lack of resources to collaborate, and lack of regular, succinct communication. All of these identified barriers were aligned with barriers reported in previous studies (Emery, 2019; Johnson et al., 2003; Schmalzried & Harvey, 2014). However, compared to the prevalence of these barriers in the previous research, participants in this study reported them to a lesser extent than expected. For example, the most common barrier reported had a mean rating of 2.8 on a 5-point scale, which equated to sometimes on the rating scale. The professional discipline that reported barriers to the greatest extent was CTE teachers. The professional discipline that reported barriers to the least extent was school
counselors. The professional disciplines most likely to report barriers as sometimes were special educators and administrators. On average, all professionals in Utah reported experiencing barriers some of the time. This result may indicate that the state’s efforts to improve interdisciplinary collaboration over the past few years are producing favorable results. However, results may instead indicate a bias toward more positive responses because the survey was disseminated by USBE – the authoritative agency for educators.

Frequency of collaboration within and across disciplines was related to barriers reported. For example, CTE teachers reported the least frequent collaboration between disciplines and school counselors reported the most frequent collaboration between disciplines. This may be accounted for by the very different roles these two disciplines play. CTE teachers have highly specialized roles in the LEA. They interact with only a portion of the student body and teach subjects with a narrower focus than other general educators. Due to this specialization, they are less likely to cross paths with other educators and administrators. This low frequency of collaboration paired with CTE teachers reporting barriers to the greatest extent tells us that more effort is needed to collaborate with CTE in serving SWD in the LEA, as Harvey et al. (2020) suggested. On the other hand, school counselors have a broad role to play in the LEA involving collaborations with individuals representing multiple disciplines. They act more like case managers than specialized service providers. It is their role to connect students to a wide range of experiences and resources, so they are much more likely to cross paths with other educators and administrators.

Administrators and SPED professionals reported high frequency of collaboration with the widest variety of other disciplines. The role of collaboration for these two
disciplines in serving SWD is also more involved than that of a school counselor. This could account for their reporting of barriers only sometimes. With such high frequency and involved roles, it stands to reason that administrators and SPED professionals would observe some collaborations that go well and some that do not, which would land them more in the middle when evaluating their overall experience. As we evaluate the level of barriers experienced by different professionals, it is clear that different supports are needed for each discipline. Understanding the barriers by discipline will help different professionals understand each other better and offers insight into how best to collaborate across professional disciplines. Also, understanding barriers by discipline offers insight to administrators as they work to remove barriers and support collaboration within their LEAs.

The last factor in this analysis is the low levels of collaboration between all disciplines and outside agencies. Even SPED professionals, who work with outside agencies the most, had low levels of overall collaboration. One-third of SPED professionals reported never working with VR and one-third reported collaboration with VR only annually. Nearly half of SPED professionals reported never working with CRPs and another one-fourth reported collaborating with CRPs only annually. Over three-quarters of CTE teachers reported never collaborating with VR or CRPs. These findings suggest that more emphasis needs to be placed on collaboration with outside agencies to serve transition-age SWD.

**Collaborative Practices**

Overall, Utah educators reported the extent to which they experience effective collaborative practices from sometimes to often. This result was also more positive than I
expected based on the barriers to collaboration reported in previous research (Emery, 2019; Johnson et al., 2003; Schmalzried & Harvey, 2014). The three most common collaborative practices were professionals (a) exhibiting a willingness to work together, (b) exhibiting a willingness to share ideas, and (c) engaging in informal communication regarding SWD. The least common collaborative practices were administrators providing adequate resources to support interdisciplinary collaboration and professionals engaging in deliberate preplanning before meeting to discuss SWD. This finding supports previous research that most professionals are willing to collaborate but find it challenging in practice (Emery, 2019; Morgan, 2015; Schmalzried & Harvey 2014). This result also aligns with the results of the barriers analysis. The top two barriers reported were time and resources to collaborate. The practices reveal willingness and informal processes as the most common collaborative practices, but resources and deliberate planning as the least common. This finding could explain why collaboration is still growing as a practice in Utah.

The professional discipline reporting collaborative practices to the greatest extent was school counselors, and to the least extent, general educators other than CTE. SPED professionals reported collaborative practices less than school counselors but more than general educators (including CTE teachers). As with barriers, this finding aligns with the nature of the different roles professionals play in the LEA. A large part of the role of a school counselor is to offer resources to students as they prepare for graduation. To do so, school counselors must collaborate with other education professionals to find out what resources are available, whether students are eligible, etc. Their work is highly collaborative. Also, they are sometimes the lone counselors in a school or one of only a
few as opposed to the number of professionals in other departments like CTE or SPED. So, they need to collaborate with other disciplines to serve students. It stands to reason that these professionals experience collaborative practices to the greatest extent. In contrast, CTE and other general educators’ primary role is to teach specific content and collaboration is not a major tenet of the basic job description, so it plays a secondary role in their work. By way of example, if a CTE carpentry teacher is teaching students to build a cabinet, there is no need to collaborate. On those rare occasions when they do need to collaborate, they may not be as comfortable reaching out because it is a low frequency behavior. SPED is in the middle because, although they too have specific teaching functions, they also need to collaborate - especially for SWD in transition.

These results offer implications for administrators as they support and lead education professionals. Creating space in the system and providing expectations, time, and resources for interdisciplinary collaboration could improve the frequency and quality of collaboration between disciplines as they co-serve SWD. Education professionals must understand each other’s roles and deliberately work to bring collaboration into their practice if it is not already a primary role. As administrators build on the willingness of professionals to work together with improved systemic practices and supports, we could see interdisciplinary collaboration become a more natural part of our education system and require less effort.

Pre-service teacher programs may also benefit from these findings. Educating pre-service teachers in the roles and responsibilities of each discipline and the needs of each discipline as they relate to collaboration practices would set the expectation for collaborative practice as educators early in their careers. If teachers come into the field
knowing how to effectively collaborate with other disciplines in supporting SWD in the education system, both new teachers and SWD will have a better experience. This preservice training experience would be especially beneficial for new general educators coming into the field who would be more prepared to have SWD in their classrooms.

**Predictors of Proportion of SWD in CTE**

In the analysis of LEA size and type in relation to CTE concentrators and completers, I only found a statistically significant relationship between LEA type and the proportion of CTE concentrators. Districts were less likely to have SWD underrepresented in their population of CTE concentrators than charter schools. I found no statistically significant relationship between LEA type and CTE completers. I also found no relationship between the size of an LEA and its proportion of CTE concentrators or completers.

The relationship between LEA type and the proportion of CTE concentrators could be accounted for by the difference in resources between districts and charter schools. Districts often have more resources than charter schools. All districts in the state have formal CTE offerings with pathways in at least a few vocational specialties and 63% of survey respondents from districts indicated that their students had access to an additional CTE center that offers CTE classes and pathways. Charters tend to have limited to no CTE pathways and offerings within their school and only 27% of survey respondents from charter schools indicated that their students had access to an additional CTE center that offers CTE classes and pathways. As collaboration between disciplines continues to grow in Utah, it will be important to support charter schools in growing student opportunities for CTE pathway concentration and completion.
The factors of collaboration that were found to have a statistically significant predictive value to the proportion of SWD in CTE were (a) the existence of a formal transition team, (b) the practice of co-teaching, and (c) the level of attendance of professionals in the IEP meetings of SWD they teach or serve. None of the top three barriers to collaboration or collaborative practices were found to be predictors of the proportion of SWD in CTE. All three statistically significant factors of collaboration were predictive of the proportion of SWD completing CTE pathways and only the practice of co-teaching was also predictive of the proportion of students concentrating in CTE pathways. With all three factors, the more positive the responses, the higher the proportion scores for SWD as CTE completers. This finding means that when respondents reported having a formal transition team in the LEA, co-teaching was reported as a common practice in the LEA, or professionals reported frequent participation in IEP meetings of SWD they serve, the proportion of SWD completing CTE pathways improved. These data are preliminary findings from an exploratory study, but suggest that improving these practices within an LEA could improve the proportion of SWD represented among CTE completers in the LEA.

These findings have broad implications for both in-service education professionals and pre-service education programs. All three practices have practical application and are commonly understood within the field of education. State and LEA leadership can provide professional learning opportunities targeting these three factors of collaboration. Classroom educators can seek opportunities to practice co-teaching to support SWD in general education settings and administrators should implement systems and training to encourage this practice. LEAs can encourage and support participation of
multiple disciplines in IEP meetings of SWD – including building in formal systems of communication and information-sharing to gather input from all professionals working with a student. All education professionals can participate in opportunities to build and support transition teams within their LEA – such as participating in the annual state transition institute. These findings support current state initiatives to increase the number of LEAs in the state who have active, functioning transition teams. Pre-service education programs can train new educators to build these practices into their work as they participate in student teaching and begin their careers.

**Collaborative Factors and Access of SWD to CTE**

The perception of educators regarding the access SWD have to CTE pathways has promising implications for education professionals. According to the CTE enrollment data, as a state, SWD are only slightly underrepresented in CTE as compared to students without disabilities. However, some individual LEAs still have significant underrepresentation of SWD in CTE pathways. Educators responding to this survey – regardless of LEA – overwhelmingly reported that SWD have the same access to CTE as their non-disabled peers. This would suggest that educators perceive equal access regardless of the CTE enrollment data for SWD in the LEA. This may suggest that educators are not aware of the enrollment data for SWD in CTE within their LEA. An example of this is that transition teams participating in the annual Utah Transition Institute are not yet examining CTE enrollment data for SWD in their LEA to help with team goal setting (L. Gripentrog, personal communication, May 9, 2022). As a recent initiative, USBE has provided professional learning and technical assistance to LEAs in an effort to encourage LEA self-assessment and improve data-driven decision making.
CTE enrollment data could be an important area for USBE to provide additional professional learning and technical assistance to this end for LEAs with lower representation of SWD in CTE pathways. As LEAs evaluate their CTE enrollment data, they have the opportunity to accurately evaluate the participation of SWD in CTE for their LEA and make adjustments to improve access as needed.

The factors of collaboration that were found to have a statistically significant relationship to the perceived level of access SWD have to CTE pathways included one of the top three barriers and all of the top three collaborative practices. Specifically, the factors were (a) lack of communication, (b) willingness to work together, (c) willingness to share ideas, and (d) informal communication practices. Respondents who reported SWD had less access to CTE than their non-disabled peers were more likely to report communication as a barrier to a greater extent. Respondents who felt SWD had the same access to CTE as their non-disabled peers were more likely to report communication as a barrier to a lesser extent. I explored the relationship between perceived level of access and the next three barriers ranked by educators to see if this pattern continued, and it did. Lack of professional learning regarding co-serving SWD, lack of understanding of each professional’s roles and responsibilities, and insufficient professional learning regarding other professionals were also reported as barriers to a greater extent if respondents perceived less access to CTE for SWD and were reported as barriers to a lesser extent if respondents perceived the same access to CTE for SWD. In examining the top three collaborative practices, respondents who perceived less access to CTE for SWD reported experiencing collaborative practices to a lesser extent and respondents who perceived the same access to CTE for SWD reported experiencing collaborative practices to a greater
extent. These findings suggest that a positive perception of access to CTE for SWD is related to more positive perceptions of interdisciplinary collaboration and a negative perception of access to CTE for SWD is related to less positive perceptions of interdisciplinary collaboration.

This result offers insight to administrators for self-assessment activities within the LEA regarding SWD in CTE. These relationships in perceptions could suggest that if educators feel collaboration is going well, they may not perceive inequalities in actual student participation in CTE. This will be important for LEAs with low representation of SWD in CTE as reported in the CTE enrollment data set. If educators do not perceive that SWD are underrepresented in CTE, they may be less motivated to address it as a problem by changing their practice. It will be important to examine and share with educators in LEAs with low representation the objective data regarding how well SWD are accessing CTE in order to motivate them to change their practice to better support SWD to succeed in concentrating in and completing CTE pathways. Additionally, if collaboration is going well in the LEA and SWD are still underrepresented in CTE pathways, it will be important for school teams to identify other reasons SWD are not accessing CTE at the same rate as their non-disabled peers.

Limitations

Although this study provides new data on collaboration across professional disciplines and relationships between these variables and CTE access for SWD, multiple limitations exist. First, survey respondents represented a relatively small number of educators compared to the total number of educators in the state, and all five professional disciplines were not equally represented. Also, charter schools were not represented.
equally across disciplines to the same extent as districts. These inequities in the sample as well as non-response bias (Berg, 2005) could affect the findings of this study and should be controlled for in the future. This could be achieved by selecting a representative sample of educators to survey rather than opening the survey up to all educators on a voluntary basis.

The factors of collaboration used in this study were reported from the educator survey. As such, they were perceptions of these factors by educators and not objective measures of their existence in the LEA. Although educator perspectives offer great insight into education practices, future research should also include evaluating objective measures of factors of collaboration through avenues such as observations and file reviews.

Another possible limitation to this study is that the survey was disseminated by the Utah State Board of Education. Participants may have responded in a manner indicating bias due to the authoritative nature of systemic expectation. It is possible that educators were hesitant to report challenges to state leadership and were more likely to report best case scenarios in their survey responses. The survey was anonymous, which could help mitigate this risk, but it still came from the state agency that monitors compliance for LEAs in the state and could cause bias in the responses. Future research should include data collection from an independent third party to minimize this pitfall moving forward.

Finally, this study contained multiple analyses of the same data set. This will increase the likelihood of Type I errors (i.e., false positives) in the results. For this analysis, I prioritized retaining enough power to detect potential relationships rather than
adjusting for multiple comparisons which would reduce power. The effect of multiple analyses is mitigated to some extent because all initial comparisons were made *a priori*. Because this study was an initial investigation into these important relationships, the detection of potentially important predictors of the proportion of SWD concentrating in and completing CTE pathways was more important than the risk of Type I errors. This exploratory study can inform future, more in-depth studies investigating actionable insights into improving the proportion of SWD in CTE.

**Implications for Practice**

The results of this study have several implications for both practitioners and pre-service education programs. This exploration into the landscape of interdisciplinary collaboration offers important insights for state level leadership, administrators, educators, and pre-service education professionals in Utah.

State-level leadership should continue efforts to encourage collaboration with agencies outside the LEA to support transition service needs for youth. Professional learning opportunities to support practices that predict better representation of SWD in CTE should be offered to all LEAs. Resources for CTE pathways should be shored up for charter schools across the state. Finally, if interdisciplinary collaboration is really improving in LEAs in Utah, leadership should explore other reasons SWD may not be accessing CTE at the same rate as their peers in some LEAs.

Administrators should build on the willingness of their educators to collaborate by providing expectations, time, and resources to do so. It will be important for administrators to identify specific barriers to collaboration experienced by different professionals in their setting and tailor supports and expectations to each professional
discipline. Professionals with collaboration as a secondary role may need more effort and resources in support of collaboration. Administrators should also build systems in the LEA to encourage collaborative practices such as coteaching, the formation of a formal transition team in the LEA, and the attendance of interdisciplinary teams in student IEP meetings.

Practicing educators should seek out more opportunities to formally collaborate with other disciplines co-serving SWD in their setting. Educators with highly collaborative roles should more actively seek to include input from educators whose role is not naturally collaborative in this effort. Finally, educators should continually seek objective data as they form perceptions about student participation in practices that support postsecondary success such as CTE concentration and completion.

Lastly, pre-service education programs should build in training on the importance of interdisciplinary collaboration for teachers getting ready to enter the field. Pre-service teacher programs for both special education and general education should include training on the roles and responsibilities of different disciplines in serving transition-age SWD in inclusive settings. Training on effective practices such as those identified in this study would also benefit pre-service teachers who are likely to have SWD in their classrooms.

**Implications for Future Research**

A replication study with a more representative sample of Utah education professionals would help validate these findings. A third-party data collector would help mitigate the suspected bias present in this study due to the authoritative nature of USBE collecting the survey data. As a secondary data analysis, the data collection processes
were beyond my control. Third party researchers could control this process more closely to address the limitations of this study.

Additional research is needed to explore why the barriers to collaboration and effective collaborative practices were reported at such a moderate level when state leadership hears so frequently from the field that collaboration is difficult and infrequent (L. Gripentrog, personal communication, May 9, 2022). Focus groups or interviews with educational professionals in Utah could offer a deeper understanding of the nuances that may create barriers to collaboration or support effective collaboration. Given that this study suggests different professionals experience different barriers and need different support, performing focus groups or interviews of professionals according to their discipline could greatly improve our understanding of these current findings. Additionally, future research could focus on measuring the factors of collaboration objectively (e.g., through observations and file reviews) and compare them to the perceptions of the same factors identified in this study to better define the strengths and needs Utah educators have as interdisciplinary collaborators.

Finally, if interdisciplinary collaboration is truly improving and SWD are still underrepresented in CTE pathways, it will be prudent to explore other reasons SWD may not be accessing CTE pathways at the same rate as their non-disabled peers. Additional processes such as CCR planning for students with and without disabilities, course-taking requirements for SWD versus their non-disabled peers, or parental expectations for career exploration and experiences for SWD as they relate to CTE enrollment patterns of SWD could be additional areas of interest to explore.
Conclusion

This study provides three broad implications for the field of transition in serving SWD in CTE. First, three specific factors of collaboration were indicated as positive predictors of completion of CTE pathways for SWD. Educators should be encouraged and supported to practice co-teaching between SPED professionals and CTE and other general education professionals to support SWD in inclusive classroom settings. Systems should be built within LEAs to support multi-disciplinary IEP teams with attendance and participation from all stakeholders supporting SWD. Also, LEAs should work to actively implement formal transition teams to address the needs of SWD within the LEA and support positive post-school outcomes for these students. These three practices for in-service professionals could improve the utilization of CTE by SWD which has been shown to improve post-school outcomes (Mazzotti et al., 2020). This also has implications for preservice teacher programs. Instruction in these practices for preservice teachers will improve the likelihood that they are implemented in the field as they begin their careers as teachers.

Second, perceptions of educators are powerful in identifying or not identifying the needs of SWD in CTE. It is critical that education professionals are making decisions about SWD in CTE based on data rather than perception. Measuring participation of SWD in CTE objectively will help LEAs identify strengths and needs and make adjustments as needed to be sure SWD are well-supported in accessing CTE as part of their journey toward achieving their post-secondary goals.

Finally, this study suggests that barriers and collaboration practices across disciplines should not be viewed as a singular process but dependent on the professionals involved and their job roles. Collaboration practices, barriers, and both preservice and in-
service training are different for each professional discipline. Therefore, as we promote interdisciplinary collaboration as an effective practice, we need to be more specific when we talk about disciplines and their collaboration practices and the barriers they face.

This study opens the door for further exploration into best practices in professional learning and collaborative practices tailored for each discipline rather than promoting collaborative practice as a whole. It holds implications for professionals in LEAs to better work together by better understanding the needs of each discipline. It holds implications for preservice teacher programs to promote interdisciplinary collaboration in a more differentiated way rather than teaching about it as a broad theory.
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Appendices
Appendix A. Secondary Transition Collaboration Survey

Survey Flow

<table>
<thead>
<tr>
<th>Block: Introduction (4 Questions)</th>
<th>Standard: Professional Discipline (1 Question)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard: CTE Specific Activities (8 Questions)</td>
<td>Standard: Frequency of Collaboration with Educational Partners Scale (1 Question)</td>
</tr>
<tr>
<td>Standard: Barriers to Collaboration Scale (3 Questions)</td>
<td>Standard: Scale of Collaborative Practices (1 Question)</td>
</tr>
<tr>
<td>Standard: COVID (1 Question)</td>
<td>Standard: Teacher Collaboration Questions (3 Questions)</td>
</tr>
</tbody>
</table>

Branch: New Branch

If

If Select your professional discipline from the dropdown box Special Educator Is Selected

Or Select your professional discipline from the dropdown box Career and Technical Educator Is Selected

Or Select your professional discipline from the dropdown box Other General Educator Is Selected

Page Break
This survey was created as part of an effort to improve post-school outcomes for students with disabilities in our state. The purpose of this survey is to identify both positive interdisciplinary collaboration practices and barriers to collaboration experienced in Utah schools as we co-serve students with and without disabilities. The survey will take approximately 15-20 minutes to complete. All responses are confidential and will be aggregated to look for patterns and not reported individually.

As you complete the survey, please consider your responses as they relate to your specific school setting. Additionally, we know that the COVID-19 pandemic has disrupted or changed our practice in many ways. Please respond to this survey as it applies to your practice prior to the 2020 school year (before COVID) as best you can. We appreciate your willingness to offer input in this effort.

The Utah Secondary Transition Team

---

**Q2 Select your LEA from the dropdown box**

▼ Click to write Choice 1 ... Click to write Choice 3

---

**Q3 Select your School from the dropdown box**

▼ Click to write Choice 1 ... Click to write Choice 3

---
Q4 Were you employed with this LEA before August of 2019? (If you were not employed with this LEA prior to August 2019 please answer the survey questions as they pertain to your current experience.)

○ No

○ Yes

End of Block: Introduction

Start of Block: Professional Discipline

Q5 Select your professional discipline from the dropdown box

▼ Special Educator ... Administrator

End of Block: Professional Discipline
Q6 College and Career Readiness (CCR) planning is a process all students work through with their assigned school counselor to plan for the student's graduation and future.

Is it common practice in your school for students with disabilities (SWD) to meet with their school counselor to create their CCR plan on the same schedule as their non-disabled peers?

- Yes
- No
- If no, who do SWD meet with to develop their CCR plan?
  ___________________________________________________
- I don't know

Q7 A formal transition team is a team made up of interdisciplinary professionals (i.e., special educators, general educators, administrators, school counselors) that sets expectations and goals for supporting students with disabilities in their transition to postsecondary activities.

Does your school or LEA have a formal transition team that meets regularly to address transition within the LEA?

- Yes
- No
- I don't know

Q8 Co-teaching is a practice where general educators and special educators teach a class together that includes both students with and without disabilities.
Is co-teaching a common practice in your school to support students with disabilities in general education classrooms?

- Yes
- No
- I don't know

Q9 Is it common practice for you to attend Individualized Education Program (IEP) meetings of students with disabilities you teach/serve?

- Yes
- No

- If no, do you provide input on student functioning and progress to the IEP team in some other way? Please describe. 

- I don't know
Q10 To what extent do you attend and participate in IEP meetings of students with disabilities you teach/serve?

- Attend, but mostly observe
- Attend and answer questions as needed
- Attend and come prepared with input on student levels of functioning
- Offer input in writing for the IEP, but do not attend
- Offer verbal input when asked, but do not attend
- Do not attend or participate

End of Block: Effective Teaming Practices
Q11 What *formal* systems of information sharing do you use to communicate with other disciplines regarding students with disabilities you serve? (Check all that apply)

- [ ] Joint access to edit student files - including the IEP
- [ ] Access to accommodations and IEP information through SIS system
- [ ] Writing reports to share between disciplines
- [ ] Completing forms to share between disciplines
- [ ] Meetings (i.e., PLC, Student support, or department meetings)
- [ ] Other ________________________________
- [ ] None
Q12 What is the *most common* formal system of information sharing you use to communicate with other disciplines regarding students with disabilities you serve?

- Joint access to edit student files - including the IEP
- Access to accommodations and IEP information through SIS system
- Writing reports to share between disciplines
- Completing forms to share between disciplines
- Meetings (i.e., PLC, Student support, or department meetings)
- Other ____________________________________________
- None

---

Q13 Which other discipline are you *most likely* to communicate with through {Answer from Q12 automatically inserted} regarding students with disabilities you serve? (Check all that apply)

- Special education teacher
- General education teacher (including CTE)
- School Counselor
- Administrator
- I do not share information with other disciplines
Q14 Who typically initiates the {Answer from Q12 automatically inserted} you use to communicate with other disciplines regarding students with disabilities you serve?

- SPED Teachers
- General education teachers (including CTE)
- School counselors
- Administrators
- Other ________________________________
- All education professionals equally

Q15 How frequently do you use {Answer from Q12 automatically inserted} to communicate with other disciplines regarding students with disabilities you serve?

- Daily
- Weekly
- Monthly
- Quarterly
- Annually
- Never
Q16 What informal systems of information sharing do you use to communicate with other disciplines regarding students with disabilities you serve? (Check all that apply)

- [ ] In-person conversations in passing or by dropping in
- [ ] In-person conversations scheduled to talk about the student
- [ ] Written notes
- [ ] Email
- [ ] Phone calls
- [ ] Other __________________________________________________________
- [ ] None
Q17 What is the most common informal system of information sharing that you use to communicate with other disciplines regarding students with disabilities you serve?

- In-person conversations in passing or by dropping in
- In-person conversations scheduled to talk about the student
- Written notes
- Email
- Phone calls
- Other ________________________________________________
- None

Q18 Which other discipline are you most likely to communicate with through {Answer from Q17 automatically inserted} regarding students with disabilities you serve? (Check all that apply)

- Special Education teachers
- General education teachers (including CTE)
- School Counselors
- Administrators
- I do not share information with other disciplines
Q19 Who typically initiates the \(\text{Answer from Q17 automatically inserted}\) you use to communicate with other disciplines regarding students with disabilities you serve?

- SPED Teachers
- General education teachers (including CTE)
- School Counselors
- Administrators
- Other ________________________________________________________________
- All education professionals equally

Q20 How frequently do you use \(\text{Answer from Q17 automatically inserted}\) to communicate with other disciplines regarding students with disabilities you serve?

- Daily
- Weekly
- Monthly
- Quarterly
- Annually
- Never

End of Block: Communication Practices
Start of Block: CTE Specific Activities

Q21 Does your school offer CTE with aligned pathways available to all students for CTE concentration (1.5 credits in a single pathway)?

○ Yes
○ No
○ I don’t know

Q22 Does your school offer CTE with aligned pathways available to all students for CTE completion (3.0 credits in a single pathway)?

○ Yes
○ No
○ I don’t know

Q23 Does your school or district have access to an additional technical center to provide CTE classes and pathways?

○ Yes
○ No
○ I don’t know
Q24 Does your school or district have a formal relationship with a postsecondary CTE college or institute to provide CTE classes and pathways?

- Yes
- No
- I don't know
Q25 What personnel participate in the decision to refer students with disabilities to CTE pathways? (Select all that apply)

☐ Special Educator
☐ Career and Technical Educator
☐ Other General Educator
☐ School Counselor
☐ Administrator

Q26 What personnel actively and directly support students with disabilities in concentrating in or completing CTE pathways? (Select all that apply)

☐ Special Educator
☐ Career and Technical Educator
☐ Other General Educator
☐ School Counselor
☐ Administrator
Q27 What is your level of knowledge regarding the Career Development Credential offered to high school students with disabilities in Utah?

- Very knowledgeable
- Somewhat knowledgeable
- Slightly knowledgeable
- Not knowledgeable

Q28 Do students with disabilities in your school have the same access to and opportunities through CTE as their non-disabled peers?

- SWD have the same access and opportunities in CTE as their non-disabled peers
- SWD have less access and opportunities in CTE as their non-disabled peers
- SWD have more access and opportunities in CTE as their non-disabled peers
- I do not have any knowledge or experience with SWD in CTE in my school

End of Block: CTE Specific Activities

Start of Block: Frequency of Collaboration with Educational Partners Scale
Q29 Please rate the frequency with which you collaborate with each of the following personnel outside your specialty to serve students with disabilities (SWD) in your school.

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Daily</th>
<th>Weekly</th>
<th>Monthly</th>
<th>Quarterly</th>
<th>Annually</th>
<th>Never</th>
<th>N/A, This is my discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Education Professionals (SPED)</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Career and Technical Education (CTE) Teachers</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Other General Education Teachers</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>School Counselors</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>School Administrators</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Vocational Rehabilitation (VR) Counselors (From Dept of Workforce Services)</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Additional transition service providers not affiliated with your school (i.e. pre-employment transition service providers or other community rehabilitation providers)</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
End of Block: Frequency of Collaboration with Educational Partners Scale

Start of Block: Barriers to Collaboration Scale
Q30 Please rate the extent to which each of the following are barriers to collaboration among disciplines in your school.
<table>
<thead>
<tr>
<th>Poor communication</th>
<th>Almost always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Almost never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confusion about whose responsibility it is to initiate communication</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of understanding of each discipline's roles and responsibilities</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Insufficient professional development regarding other disciplines</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Insufficient professional development regarding co-serving SWD</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of accountability</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of common vision and goals</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Territoriality or turf issues</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Weak working relationships between disciplines</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of time to collaborate</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of resources to collaborate</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
| Lack of trust  
  (i.e., unsafe to ask questions, feeling exposed or vulnerable) |   |   |   |   |   |   |
|---------------------------------------------------------------|---|---|---|---|---|---|
| Disrespect between professionals  
  (i.e., judgment, assuming ill intent, rudeness) |   |   |   |   |   |   |
| Lack of commitment to collaborative practices from leadership and key decision makers |   |   |   |   |   |   |
| System barriers  
  (i.e., administrative expectations, processes, contract time limitations, etc.) |   |   |   |   |   |   |

Q31 If you identified resources as a barrier, please describe the resources you see lacking in your setting.

______________________________________________________________________________________________________

Q32 If you identified the system as a barrier, please describe the systemic barriers you see or experience in your setting.

______________________________________________________________________________________________________

End of Block: Barriers to Collaboration Scale
Q33 Please rate the extent to which each of the following collaborative practices are engaged in to co-serve students with disabilities (SWD) in your school.
<table>
<thead>
<tr>
<th></th>
<th>Almost always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Almost never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professionals exhibit a common vision for how SWD can and should participate in CTE</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Professionals exhibit a shared commitment to serving SWD in CTE</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Education professionals exhibit a willingness to work together</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Professionals engage in regular, succinct communication regarding SWD participating in CTE</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Education professionals seek to understand the culture and expectations of each other's disciplines</td>
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<td>Professionals build strong working relationships between disciplines</td>
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<td>Education professionals show a willingness to share ideas and learn from each other</td>
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Professionals engage in deliberate preplanning before meeting to discuss SWD (i.e., gathering information ahead of time, assigning tasks to different team members, etc.)

Education professionals exhibit a willingness to change / compromise when needed

Education professionals engage in INFORMAL information sharing regarding SWD being co-served

Education professionals engage in FORMAL information sharing regarding SWD being co-served

Adequate resources are provided for collaboration between disciplines
Leadership from key decision makers offers strong support for collaboration between disciplines

End of Block: Scale of Collaborative Practices

Start of Block: COVID

Q34 Are your collaboration practices different now than from your responses on this survey related to the school years prior to 2020? If so, please describe the difference.

End of Block: COVID
Q35 How frequently do CTE teachers reach out to consult with SPED teachers on needed accommodations and modifications for students with disabilities being co-served?

- Multiple times a day
- Daily
- A few times a week
- Weekly
- Monthly
- A few times a year
- Annually
- Never
- I don't know
Q36 How frequently do other general education teachers reach out to consult with SPED teachers on needed accommodations and modifications for students with disabilities being co-served?

- Multiple times a day
- Daily
- A few times a week
- Weekly
- Monthly
- A few times a year
- Annually
- Never
- I don't know
Q37 How frequently do SPED teachers reach out to consult with general education teachers (including CTE teachers) on needed accommodations and modifications for students with disabilities being co-served?

- Multiple times a day
- Daily
- A few times a week
- Weekly
- Monthly
- A few times a year
- Annually
- Never
- I don’t know

End of Block: Teacher Collaboration Questions
Appendix B. Curriculum Vitae
Crystal K. Emery  
Ph.D.

Utah State University  
Logan, UT 84322-2865  
(801) 376-6012  
crystalemery92@gmail.com

EDUCATION

**Utah State University**  
Logan, UT  
**PhD**, Disability Studies  
Specialty: Transition  
2022

**Utah State University**  
Logan, UT  
**Master of Science**, Special Education  
Emphasis: Transition  
2019

**Weber State University**  
Layton, UT  
**Certificate Program**, Coaching Early Childhood Professionals  
2014

**Brigham Young University**  
Provo, UT  
**Bachelor of Science**, Exercise Science  
Minor: Psychology, Emphasis: Child Development  
2004

CERTIFICATIONS

ACRE Trained Employment Specialist – Customized employment emphasis  
Certified Coach for early childhood professionals, Weber State University  
Certified Trainer of the Routines-Based Interview (RBI), Siskin Children’s Institute  
Certified Educator of Infant Massage, **CEIM**, Infant Massage, USA  
Early Intervention Specialist Level 2, **EI II**, Baby Watch - Utah Department of Health

PROFESSIONAL EXPERIENCE

Utah State Board of Education  
August 2021 to Present  
**Secondary Transition and State Systemic Improvement Plan Specialist**, Full time

• Facilitate the interagency Statewide Collaborative on Improving Post-secondary Transition Outcomes for Youth with Disabilities
• Provide professional learning and technical assistance to local education agencies regarding transition requirements under federal special education law
• Develop policies and recommendations based on evidence-based practices
• Partner with Vocational Rehabilitation and other state agencies to ensure a coordinated effort to support youth with disabilities as they transition into adulthood

Rocky Mountain University of Health Professions September 2019 to Present
Instructor, Adjunct

• Create curriculum for Family Assessment for a half-semester professional seminar
• Teach classes both in person and online

Easterseals-Goodwill Northern Rocky Mountain, Sandy, UT April 2009 to October 2021
Training and Development Specialist, Transition Services Program Manager, Full time

• Hire, train, and supervise new staff members using coaching and reflective supervision
• Develop professional development opportunities for early intervention staff using current research on best practice
• Present training opportunities for staff, families, and other organizations as requested
• Manage Pre-Employment Transition Services for ESGW throughout the state of Utah
• Create basic measurement tools to collect data for analysis of transition program effectiveness
• Develop and maintain program manual and documentation
• Collaborate on multi-agency committees to improve services in the community
• Coach staff and families through pre-employment transition services

Utah State University September 2019
Guest Lecturer

• Presented the Routines-Based Interview in SPED 5810: Seminar and Field Experiences with Infants and Families

Utah Valley University Continuing Education, Orem, UT January 2016 to May 2016
Instructor, Adjunct

• Created curriculum for Coaching for Early Childhood Professionals Certificate
• Taught classes in the certificate program both in person and online

Baby Watch Early Intervention, Salt Lake City, UT September 2007 to December 2017
Curriculum Development Consultant, Intermittent Contract Position

• Revise and create new training modules in collaboration with the CSPD coordinator
• Present training modules as part of new staff training and development
• Train and consult on implementation of the coaching model of training and supervision

Kids on the Move, Orem, UT September 1998 to November 2010
Child Development Specialist, Early Intervention Staff Mentor, Full time
- Mentor early intervention staff using reflective supervision practices
- Carry a caseload for direct service provision in home visits and family classes taught

### TEACHING

**Rocky Mountain University of Health Professions**
- Coaching in Early Intervention – Guest Lecture: Spring 2019
- Professional Seminar: Family Assessment: Fall 2019
- Introduction to Early Intervention: Spring 2020
- Coaching Early Childhood Professionals: Summer 2020

**Utah State University**
- Seminar and Field Experiences with Infants and Families – Guest Lecture: Fall 2019
- Seminar and Field Experiences with Infants and Families - Instructor: Fall 2020

**Utah Valley University**
- Coaching Early Childhood Professionals: Spring 2016

### RESEARCH

**Thesis:** The Effect of Joint Training on Knowledge and Attitudes of Career and Technical Education and Special Education Professionals, 2019

**Dissertation:** An Exploration of the Correlation Between Interdisciplinary Collaboration and Representation of Students with Disabilities in Secondary Career and Technical Education, 2022

### WORK IN PROGRESS

- The Effect of Interdisciplinary Training on Knowledge, Attitudes, and Practice of High School Transition Team Professionals
- All Services are Transition Services: An Early Lifespan Approach to Supporting Transition to Adulthood
- The Effects of Interdisciplinary Training on Knowledge, Attitudes, and Perspectives of High School Transition Team Professionals
- The Effect of the Self-Determined Learning Model of Instruction (SDLMI) on Transition-Related Goal Attainment for Transition-age Students
INVITED PRESENTATIONS

Utah Transition Institute  November 2021
The Effect of Interdisciplinary Training on Knowledge, Attitudes, and Practice of Collaboration with High School Transition Teams

Spectrum Academy Parent Education Night  May 2019, April 2020
Post-secondary Education Options for Students with Disabilities

Utah Valley University Autism Conference  April 2019
Supporting Social Relationships for Children and Youth with Autism

Provo Early Intervention Program Inservice  January 2019
All Services are Transition Services

Provo Early Intervention Program Inservice  September 2018
Coaching Families in Early Intervention

Spectrum Academy Parent Education Night  March 2018
Supporting Successful Transition

Critical Issues Conference  October 2017
Play and Language for Autistic Youngsters (P.L.A.Y.)

Utah Afterschool Network Conference  Spring 2016
Supporting Social Emotional Development in Early Childhood

Provo Early Intervention Program Inservice  Summer 2015
Routines-Based Interview

Utah Afterschool Network Conference  Spring 2015
Sensory Processing Supports for Young Children

Routines-Based Interview Trainer Certification  April 2014
Instructional Coach

Utah County Early Intervention Programs Inservice  Summer 2012
Routines-Based Interview

Routines-Based Interview Trainer Certification  April 2011
Instructional Coach

PROFESSIONAL PRESENTATIONS AND WORKSHOPS

Utah Rural Schools Conference  July 2022
Get Connected: Interagency Collaboration for Transition
Utah Transition Institute

**Interagency Teaming in Transition**

Division on Career Development and Transition Conference

**Interdisciplinary Collaboration: Effects of Joint Training of Career and Technical Education and Special Education Professionals**

Utah Transition Institute

**The effect of interdisciplinary training on knowledge, attitudes, and practices of high school transition team professionals**

Critical Issues Conference

**Transition Professionals Panel**

Utah Transition Institute – facilitator and presenter

**Pre-Employment Transition Services Panel**

Critical Issues Conference

**Transition Panel**

Utah Transition Institute – facilitator

Utah Afterschool Network Conference

**LEGO Club – A Social Skills Group**

Utah Valley University Autism Conference

**Harnessing the Power of Adolescence**

Utah Transition Institute – facilitator and presenter

**Peer Connections: A Program for Transition-age Youth**

Critical Issues Conference

**Peer Connections Program Student Panel**

Spectrum Academy Parent Education Night

**Supporting Social Emotional Development in Adolescence**

Davis Transition Conference

**The Developmental Tasks of Adolescence**

Utah Valley University Autism Conference

**Social-Emotional Supports for Young Children with Autism**

Davis Transition Conference

**Supporting Successful Transition – Poster Session**
GRANT ACTIVITIES

2017 - 2021
Utah State Office of Rehabilitation
Pre-Employment Transition Services
Role: Program Manager

PROFESSIONAL SERVICE

2019 - Present
Job Placement and Development Board Member at Large

2018 - 2021
Critical Issues Conference Committee Member

2018 - Present
Special Needs PTA Committee Member

2015 - 2021
Autism Resources of Utah County Council Member