NTACT
National Technical Assistance Center on Transition

Career and Technical Education Annotated Bibliography

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What is Career and Technical Education?

Career and technical education (CTE) is a form of educational service that is centered around preparing students for the workforce. The idea of career and technical education came about in the early 1900s as the idea of training individuals for skilled and unskilled labor positions while they were still in school. In 1984 the federal government authorized the Carl D. Perkins Act that was enacted to help increase access to high-quality CTE to students across the nation through funding and regulation. At its core, CTE is intended to bridge the gap between high school education and postsecondary employment by teaching employment skills to students while they are in high school. There are various methods in teaching the skills, but the most popular method used today is career cluster education. Career cluster education embeds academic content and CTE content within the context of a particular career.

Carl D. Perkins Vocational and Applied Technology Education Act, 20 U.S.C. §2301 et seq. (2018).

Why is Career and Technical Education in Transition Planning Important?

Career and Technical Education (CTE) is vital in transition planning because it can aid students with and without disabilities in preparing for postsecondary employment as well as postsecondary education. Transition planning is mandated by the Individuals with Disabilities Education Acte (IDEA, 2004) through the Individualized Transition Plan (ITP) portion of the Individualized Education Plan (IEP) which is required to begin at least 16 years of age. Ideally students with disabilities should be included in CTE as the Perkins Act (2018) requires the inclusion of individuals with disabilities with CTE classes and programs.

Carl D. Perkins Vocational and Applied Technology Education Act, 20 U.S.C. §2301 (2018).
Individuals with Disabilities Education Act, 20 U.S.C. § 1400 (2004).

What Does the Literature Say About Career and Technical Education in Transition Planning?

The literature states the involvement in CTE programs and classes is beneficial to students with a variety of disabilities. It allows for students with disabilities to learn a multitude of skills including job skills, functional life skills, work behaviors, academic skills, and real life training. Many articles state that students with disabilities should be more involved in CTE classes and programs. Overall, CTE has a positive effect on individuals with disabilities and they should be included in it.

Bellamy, G., Wilcox, B., Rose, H., & McDonnell, J. (1985). Education and career preparation for youth with disabilities. Journal Of Adolescent Health Care, 6(2), 125-135.

- Describes processes in regards to the preparation of employment for students with disabilities within the education setting.
- Describes what students are taught in school-based education and career preparation terms of curriculum content and individualization as:
    - Acquisition of job skills
    - Development of work support behaviors
    - Choice of job area
    - opportunities for job mobility or advancement
    - A job placement
    - Use of a self and family directed IEP
    - Generalized responding
- Described postsecondary, employment related services for students with disabilities as genetic services, time-limited disability services, and ongoing services.
- Recommendations for future research include the need to determine the most effective way to teach in-school vocational skills.

Carter, E. W., Trainor, A. A., Cakiroglu, O., Swedeen, B., & Owens, L. A. (2010). Availability of and access to career development activities for transition-age youth with disabilities. *Career Development for Exceptional Individuals*, 33(1), 13-24.

- Examined school administration perspectives of practices that may influence the preparation youth with disabilities (severe disabilities and EBD) receive related to employment.
- Results found that even though there are many vocational and career-related offerings at high schools, students with disabilities seem to have uneven and limited access to them.
- Recommendations for future research include exploring reasons why students with disabilities have limited access to career development experiences.

- Implications include increasing access and broadening the range of career development experiences for students with disabilities.

Casale-Giannola, D. (2012). Comparing inclusion in the secondary vocational and academic classrooms: Strengths, needs, and recommendations. *American Secondary Education,* 40(2), 26.

- Examined the strengths and weaknesses of inclusion in academic classrooms and CTE/vocational classrooms.
- Results found that strengths of inclusive academic classes in a vocational secondary schools were:
    - Meaningful teacher-student relationship and rapport
    - Real-life connections to lesson content and intriguing discussion
    - Motivating students through active-learning and multi-learning modalities
    - Good collaboration between co-teachers
- Results found the weaknesses of inclusive academic classes in the vocational secondary school were:
    - Teachers lack necessary strategies
    - Students with disabilities lack necessary skills
    - Lack of co-teaching collaboration and co-teaching models
    - Teachers lack necessary awareness about special education
    - Uneven scheduling of students
    - Limited student assessments
- Results found the strengths of the inclusive vocational classes in the vocational secondary school were:
    - Good use of differentiated instruction
    - Real-life connection
    - Active learning opportunities
    - Repetition
    - Meaningful teacher-student relationships
    - Teacher passion and expertise
- Results found the weaknesses of the inclusive vocational classes in the vocation secondary school were:
    - Weak student basic skills
    - Lack of understanding of special education
    - Difficulty supervising the classroom
- Implications to support inclusion in CTE/vocational settings include:
    - Implement co-teaching service-learning models in academic co-taught classrooms
    - Increase Active-learning opportunities in academic classrooms
    - Provide basic skill support and remediation in all content areas

- Increase teacher repertoire of learning strategies and modification to support individuals with disabilities
- Create multiple and modified assessment opportunities
- Increase collaboration and co-teaching opportunities with CTE/vocational and academic teachers
- Implement strategies to support positive behavior and management in CTE/vocational classrooms
- Increase opportunities for community building

Cawley, J.F., Kahn, H. & Tedesco, A. (December 1989). Vocational education and students with learning disabilities. *Journal of Learning Disabilities.* 22(10), 630-640.

- Examined the status of 500 students with learning disabilities enrolled in state supported regional vocational technical schools in regards to assessments, occupational area of enrollment, attendance, and grades.
- Examined the eligibility of selected students with learning disabilities by using the discrepancy formula that contrast their present level of functioning and their expected levels of functioning and the number of career options they were enrolled into.
- Findings indicated that all students in this inquiry were determined to be eligible under the category of learning disabilities; however, not all determinations were made using the same attributes and vocational education assessments data were rarely included in the IEPs reviewed.
- Results suggested that the students with learning disabilities were enrolled in 28 career options alongside their peers without disabilities and are expected to meet the same standards.
- Implications for practice included that schools should encourage students with learning disabilities to pursue a variety of career options and provide direct instruction and special education support services in order to meet the variety of needs of the students with learning disabilities.

Coates, H. (2009). Building quality foundations: Indicators and instruments to measure the quality of vocational education and training. *Journal of Vocational Education and Training*, 61, 517-534.

- Described quality indicators for Australia's Vocational Education and Training (VET) programs according to the Australian Quality Training Framework (AQTF), in order to help identify evidence-based and outcomes-focused approaches to VET.
- Described essential standards of a registered training organization (RTO) as including that RTOs provide quality training and assessment across all operations; adheres to principles of access and equity as well as maximizing outcomes for all clients; and has management systems that are responsive to the

needs of clients, staff, stakeholders, and the environment in which the RTO operates.

- Described the learner engagement quality indicator as focusing on key aspect of training including:
  - Whether learners are engaging in activities that promote high quality skills
  - Learners' competency development
  - Individual and educational support provided by the RTO
- Described the employer satisfaction quality indicator as focusing on aspects of quality like:
  - Learner/employee competency development
  - Relevance of learner competency to work and further training
  - quality of training and assessment
- Recommends that RTOs use the quality indicator data to:
  - Gauge how well they are meeting the needs of the clientele
  - Inform data-driven improvement
  - Provide measures of education and training outcomes
  - Provide evidence to agencies regarding risk assessment
  - manage and improve relationships with key learner and employee stakeholders
  - Identify areas of improvement in training and assessment services

Collet-Klingenberg, L. L. (1998). The reality of best practices in transition: A case study. Exceptional Children, 65(1), 67.

- Examined a successful secondary program's transition.
- Results described the observed and intended transition practices at the participating school that can be separated into three categories: vocational related practices, related transition instruction, and indirect transition practices.
- Results indicated that the following were best practices: newly implemented work experience program, the instructional emphasis on skills related to self-determination, and the solid planning practices inherent in the school and community based transition teams.
- Recommendations for future research include for follow-up studies regarding the successes of students after their transition from secondary education.
- Implications include involving parents and students in the transition process.

Dietrich, D. (1980). Vocational mainstreaming for educable mentally retarded students. *Career Development for Exceptional Individuals*, 3(2), 101-8.

- Examined the difference in work adjustment skills (work motivation, self-concept, maturity, productivity, emotional stability, learning ability, social skills,

sensory skills, and work habits) between students with disabilities and students without disabilities who were enrolled in an area vocational-technical school that received mainstreamed vocational content instruction.

- Results indicated that students with disabilities' work adjustment skills were significantly lower than their nondisabled peers. This was specifically attributed to weaknesses in independence, understanding directions, memory of instructions, quality and quantity of work, and personal appearance.
- Recommendations for future research include developing a comprehensive vocational evaluation system that can be used as an indicator of a student's potential success in an area vocational-technical school.
- Implications include utilizing the services of curriculum specialists, special educators, and vocational educators when including individuals with disabilities in vocational mainstreaming programs.

Dougherty, S.M., Grindal, T. & Hehir, T. (2018). The impact of career and technical education on students with disabilities. *Journal of Disability Policy Studies.* 29(2), 108-118.

- Examined the effect of CTE on academic outcomes (i.e., graduation, MCAS scores, IRC attainment) for students with disabilities compared to their peers.
- Findings indicated that students with disabilities who participate in Regional Vocational and Technical Schools (RVTS) are more likely to graduate on time (i.e., 4 years) than peers in other educational settings and earn an Industry Recognized Credential (IRC).
- Results suggested the impact of CTE differ by educational setting and disability (e.g., students with disabilities engaging in CTE in RVTS have better outcomes than those engaging in CTE programs at the high school).
- Recommendations included exploration of state and local data to identify programs making the most impact for diverse populations of students with disabilities as well as expansion of offerings targeted toward students with disabilities to increase capacity and shape offerings related to high-demand careers.

Evanciew, C. E. (2001). Placement of students with special needs in trade and industrial programs in Oklahoma area vocational/technical centers. *Journal of Career and Technical Education*, 17(2), 26-35.

- Examined how placement of secondary students with disabilities in trade and industrial programs in area vocational/technical centers is determined, and which exceptionalities are most involved in vocational/technical programs.
- Results indicated that all area vocational/technical centers offered placements for students with disabilities, but that students with learning disabilities were the largest group represented for students with disabilities in trade and industry programs.

- Results indicated that the most popular trade and industry placements for students with disabilities were: Applied Training Academic Education (ATAE) Construction, ATAE Mechanical, Auto Service Technician, Building and Grounds Maintenance, Carpentry, and Welding.
- Recommendations for future research include exploring what happens to students who are not selected to participate in vocational/technical programs.
- Implications include enrolling students with disabilities in vocational/technical programs, such as the above listed trade and industry placements, to help them to be productive members of society, by giving them the skills necessary to obtain employment.

Haber, G. D., & Sutherland, L. (2008). The four A's of managing the placement and service of students with disabilities in the CTE classroom. *Journal for Vocational Special Needs Education*, 30, 4-8.

- Describes the lack of students with disabilities' incorporation in career and technical education (CTE), as a lack of CTE teacher preparedness in teaching students with disabilities and describes a four-step model that can help increase enrollment and involvement of students with disabilities in CTE programs.
- Describes step one, assist in the placement decision, as the need for the CTE teacher to help decide the appropriate placement for students with disabilities within CTE programs.
- Describes step two, accommodate according to the IEP, as the need for the CTE teacher to look at and review the following parts of the IEP to help make appropriate accommodations for students with disabilities in CTE programs:
    - Disability
    - Curricular Modifications
    - Annual Goals and Objectives
    - Instructional modifications and accommodations
    - Strengths and needs
    - Academic performance
    - Student career and transition goals.
- Describes step three, assess the IEP's quality and appropriateness, as the need for CTE teachers to assess the IEP and determine if the provided accommodations and modifications are appropriate for the CTE setting and as well as assess if the transition goals and objectives are reasonable and attainable through the CTE programs.
- Describes step four, become a student advocate, as the need for CTE teachers/program coordinators to advocate for students with disabilities in CTE programs by making contact with parents early in the year, attempt to be viewed as a caring teacher through parent contact, ensure that parents are contacted to report student status in CTE, develop cooperative partnership with parents to

bridge the gap between home and school, and place concerns and suggestions in terms of what is best for the student.

- Recommends that CTE teachers who are educating students with disabilities follow this four step process.

Hazelkorn, M. N., & Lombard, R. C. (1991). Designated vocational instruction: Instructional support strategies. *Career Development for Exceptional Individuals,* 14(1), 15-25.

- Describes designated vocational instruction (DVI) as an interdisciplinary effort between special educators and vocational educators that helps high school students with disabilities learn vocational skills in their least restrictive environment. In DVI it is the special educators job to provide direct support to students with disabilities and to provide indirect support to vocational instructors or the vocational program.
- Describes effective direct instructional support in the vocational classroom as attending classes with students, giving further explanations or demonstrations, assisting during lab session, and providing hands-on help. More supports include helping students take notes, assisting with daily assignments, checking weekly assignments, reading exams aloud to students, and monitoring student progress.
- Describes effective direct instructional support in the special education classroom that support vocational education as helping students be accountable for their work, studying with students, reinforcing skills covered in vocational courses, reading assignments aloud, providing study guides and chapter reviews, highlighting and color-coding textbooks, conducting labs (ex. typing, measuring, cooking, and record keeping) to further student skills, indicating page numbers for review questions, reviewing for exams, administering tests for students with reading difficulties, and allowing more time and a location for students to finish vocational exams.
- Describes indirect instruction support as collaborative learning, tutoring, and competency-based curricula.
- Recommends incorporating direct and indirect instructional strategies into vocational education to better serve students with disabilities.

Hutchinson, L.N., Freeman, J.G., & Downey, K.H. (1992). Development and evaluation of an instructional module to promote career maturity for youth with learning difficulties. *Canadian Journal of Counselling,* 26(4), 209-299.

- Examined the effects of a counselling program designed to promote the career maturity of at risk students (i.e. low-achieving and learning disabilities).
- Results suggested that “at risk” students (i.e. low-achieving and learning disabilities) demonstrated positive change on items dealing with future career

choices, the abilities needed for chosen career, and the reasons for a career choice.

- Findings indicated that the students' attitudes and participation improved as the module progressed because careers in which students expressed interest were emphasized.
- Recommendations included that the combination of cognitive instruction in careers and the integrated curriculum would result in the larger increase in employment maturity.

Kantor, H., & Lowe, R. (2000). Vocationalism reconsidered. *American Journal of Education*, 109(1), 125-142.

- Described Herbert Kliebard's book, Schooled to Work, as an attempt to trace the evolution of career and technical education and to assess the impact of CTE on school curriculums.
- Described a case study of a reform strategy from 1883-1917, in which schools began to embrace manual learning and offered classes such as toolwork and woodworking. School officials struggled at first to see how this was something that needed to be taught in schools and how it could be incorporated into the curriculum.
- Described how after manual training began many schools were pushed towards including practical vocational instruction which led to the passing of the Smith-Hughes Act (1917) that provided federal funds for part- and full-time vocational education in middle and high schools.
- Discussed how Kliebard points out that agricultural education, home economics, and commercial education were included in vocational education. They also point out that commercial education was the most successful vocational education during this time because it allowed for girls to learn skills to become secretaries and stenographers.
- Discussed Kliebard's concerns with how vocational education was progressing, especially how far the idea of CTE went. He suggested that schools should set up separate programs for job training to help meet the requirement of business and industry.
- Discussed Kliebard's view that CTE should be a broad scope, rather than preparing students for specific and differentiated roles within the job market.
- Discuss Kliebard's view that today when people look at the purpose of schools, they overlook citizenship, moral instruction and intellectual development and rather focus on jobs and economic advancement.

Lombard, R. C. (1992). A survey of accessibility to secondary vocational education programs and transition services for students with disabilities in Wisconsin. *Career Development for Exceptional Individuals*, 15(2), 179-88.

- Examined the availability of vocational education programs to secondary students with disabilities and the extent of accessibility to the programs.
- Results indicated that secondary schools in Wisconsin provide vocational education within six occupational career clusters: technology education, family and consumer education, agriculture, business education, marketing, and health education.
- Results indicated that students with disabilities were more likely to be enrolled in technology education and family and consumer education within vocational education programs.
- Recommendations for future research include determining the uses of vocational assessment in providing comprehensive vocational services and education to individuals.
- Implications include continuing to use vocational education programs with individuals with disabilities and provide more opportunities within these programs to individuals with disabilities.

Morningstar, M. E. (1997). Critical issues in career development and employment preparation for adolescents with disabilities. *Remedial and Special Education*, 18(5), 307-320.

- Examined a data subset from a previous study to focus on students with disabilities and their perspectives regarding identification of careers/future employment and the role their families played in career development.
- Results seemingly validate that the strongest post-school employment predictors of students with disabilities include student personal characteristics and family influences.
- Recommendations for future research is needed regarding the impact of vocational programs on career aspirations for students with disabilities.
- Implications for practitioners include following these recommendations: consider the developmental nature of career preparation across the life-span, provide opportunities for students with disabilities to develop the skills necessary for career maturity, provide meaningful work experience, encourage the participation of families in career development, and encourage student involvement in career development.

Neubert, D. A. (1986). Use of vocational evaluation recommendations in selected public school settings. *Career Development for Exceptional Individuals*, 9(2), 98-105.

- Examined the extent to which vocational evaluation recommendations were used in placement and educational planning for students with disabilities.

- Results indicated that for follow-up predictive recommendations 77% of students were placed in one of the recommended areas of interest and aptitude. Of these placements, 30% were in vocational-technical center programs, 37% were in vocation programs at the school, and 10% were in special vocational programs.
- Results indicated that for follow-up of prescriptive recommendations no students in county A, 25% of students in county B, and 89% of students in county C had a vocational component on their IEP.
- Results indicated both special- and vocational educators perceived that the use of vocational evaluation was effective in getting students with disabilities involved in CTE.
- Implications for practice include teaching students with disabilities CTE and ensuring that is has a place in their IEP.

Pittaway, L., & Cope, J. (2007). Entrepreneurship education: A systematic review of the evidence. *International Small Business Journal*, 25, 497-510.

- Describes themes within entrepreneurship education by using a systematic literature review.
- Describes the themes and subthemes found within the literature review as follows:
    - Teaching Entrepreneurship
        - Pedagogy
        - Mapping Provision
        - Role of Business Schools
        - Role in the University
        - Impact of Courses
        - Impact of Different Cultures
    - Management Training
        - Management Development
        - Business Support
        - Mapping Demand
        - Career Development
        - Mapping Provision
    - Enterprising University
        - Institutional Policy
        - Commercialization
        - Outreach Activity
        - Academic Entrepreneurship
    - Student Entrepreneurship
        - Factors Affecting Propensity
        - Factors Impacting Capacity
        - Extracurricular

        - Raising Awareness
    - Graduate Enterprise
        - Assessing Student Factors
        - Start-Up Support for Graduates
    - Student Entrepreneur Interactions
        - Value for the Student
        - Value for the Firm
        - Coaching
    - Employment of Graduates
        - Demand for Graduates
        - Graduate Perceptions
        - Working Conditions
        - Graduate Careers
    - Doctoral Education
        - Practices
        - Supply of Faculty
    - Analysis of Policy
- Describe the results of the systematic literature review being that there is no clear definition or idea of what entrepreneur education is, even though there are many schools receiving government funding for this area.
- Recommendations include the need for future research to examine and define entrepreneurship education.

Rabren, K., Carpenter, J., Dunn, C., & Carney, J. S. (2014). Actions against poverty: The impact of career technical education. *Career Development and Transition for Exceptional Individuals*, 37(1), 29-39.

- Examined the effects of career and technical education (CTE) in regards to the below specifically regarding students with SLD and ID living in high poverty areas:
    - The likelihood of becoming employed in the year after high school.
    - The likelihood of having a job when graduating/leaving high school.
    - Becoming employed in the year after high school even though there was a lack of a job directly after high school.
- Results indicated that more males than females and more Caucasian students than African American students were likely to be employed during high school and after high school.
- Results indicated that participants who were enrolled in at least one semester of CTE classes were more likely to have a job at some time during the year after high school.
- Results indicated that participants who were enrolled in at least one semester of CTE were more likely to have a job when they left high school than those who did not.

- Results indicated that participants who left high school without a job, but who participated in CTE were more likely to acquire a job following high school than those not participating in CTE.
- Recommendations include replicating the study but including Hispanic students and also examining other factors, such as postsecondary education, independent living, and community integration for students with and without disabilities.
- Implications include schools should provide and include youth with SLD and ID on CTE programs.

Rayfield, J., Croom, B., Stair, K., & Murray, K. (2011). Differentiating instruction in high school agricultural education courses: A baseline study. *Career and Technical Education Research*, 36, 171-185.

- Examined how agricultural education teachers differentiate instruction and how lateral entry teachers and traditionally prepared teachers approach differentiation.
- Results indicated that agricultural teachers differentiate instruction by addressing student learning needs throughout the curriculum.
- Results indicated that lateral entry teachers were more likely to do the following:
    - Base teaching on students' learning needs AND the curriculum
    - Emphasize creative and critical thinking in their classrooms
    - Use several instructional formats
    - Group students based on instructional needs
    - Give more opportunities for students to choose learning activities
    - Use more than one assessment method
    - Have students complete activities based on learning preferences
    - Use different instructional methods when reteaching
- Recommendations include future research examining teacher education programs in career and technical education and their ability to better prepare teachers to differentiate instruction for a wide variety of students.
- Implications include improving differentiated instruction in agricultural education by teaching the principles of differentiated instruction in teacher education programs.

Sarkees-Wircenski, M., & Wircenski, J. L. (1994). Transition planning: Developing a career portfolio for students with disabilities. *Career Development for Exceptional Individuals*, 17(2), 203-14.

- Describes the need for a way to assess basic skills, thinking skills, and personal skills needed to achieve the outcomes of the "What Work Requires of Schools: A SCANS Report for America 2000" and the competencies required (using resources, working with others, acquiring information, understanding systems, and using technology).

- Describes how a Texas Education Agency identified and validated a list of the above competencies and categorized them into the following areas: employability skills, work related social skills, self-help/independent living skills, generalizable skills, and job related skills.
- Describes how the agency used the competencies and skills to create a career program portfolio that uses the following rating scale:
    - N- No exposure, experience, or knowledge in this area
    - 1- Student has been introduced to the competency
    - 2- Student has some ability to perform the competency and requires constant supervision
    - 3- Student can perform the competency with little supervision
    - 4- Student can perform the competency independently with no supervision and is job ready
- Describe uses of the career portfolio as: a basis for informal vocational assessment prior to placement in a vocational program, development of annual and short term goals and objectives in the vocational component of the IEP, vocational counseling, and a tool to take to a job interview to use as documentation of competencies that have been mastered.

Snow, A., & Okojie, M. C. (2013). An assessment of CTE programs in rural school district based on Carl Perkins academic standards and placement. *International Journal of Vocational Education and Training*, 21, 5-17.

- Examined the percentage of CTE students who completed the program and met the Carl Perkins placement status indicators and their transition into postsecondary education, obtaining employment, and/or joining the military between 2006 and 2010.
- Examined whether there were significant differences between CTE participants and regular high school students using test scores in US History, English II Multiple Choice, Biology I, and Algebra I as a metric.
- Results indicated that there were no statistical differences in test scores between CTE students and typical high school students. However, the mean score for CTE students was usually higher than that of typical high school students.
- Results indicated that the majority of CTE students met one of the Carl Perkins indicators and transitioned into postsecondary education.
- Recommendations include the need for a longitudinal study to assess the performance of CTE students in postsecondary education in regards to achievement and completion.
- Implications include that regardless of the negative connotation associated with CTE, CTE students achieved the same rates on testing as typical high school students.

Spruill, J. A., & Kallio, M. (1994). Transition practices and employment outcomes in rural Wisconsin. *Rural Special Education Quarterly*, 13(3), 3-10.

- Describes the outcomes of two secondary transition and vocational studies carried out in rural Wisconsin and compares results to recommend activities that teachers can implement to meet student transition needs.
- Recommends the following "Tips for Teachers" to help strengthen transition programs for students with disabilities:
    - Implement a formal career planning procedure.
    - Collect vocationally oriented assessment data in a systematic manner.
    - Engage students regularly in vocational counseling experiences.
    - Provide assessment feedback to students and parents on a regular and frequent basis.
    - When making programming decisions, include students in mainstream settings whenever possible.
    - Build strong positive relationships between yourself and regular education or vocational education instructors.
    - Establish a network of community based agencies. Attend regional meetings that focus on collaboration among school personnel and community agency personnel.
    - Do not expect to transfer total responsibility for the transition process to community agencies.
    - Foster positive relationships with parents by holding postsecondary planning workshops.
    - Emphasize postsecondary educational opportunities for students with mild disabilities by forming strong links with special needs staff at technical colleges.

Szymanski, E. M., Hanley-Maxwell, C., & Asselin, S. (1990). Rehabilitation counseling, special education, and vocational special needs education: Three transition disciplines. Career development for exceptional individuals, 13(1), 29-38.

- Describes the involvement of three key professions, rehabilitation counseling, special education, and vocational special education, in providing school-to-work transition services for individuals with disabilities.
- Describes rehabilitation counselor as having the following:
    - Professional preparation: Master's Degree with training in the following areas
        - Counseling theory, issues, and practice
        - Case management
        - Medical aspects of disabilities
        - Psychosocial aspects of disabilities

        - Career development, vocational education, and work adjustment
        - Rehabilitation planning
        - Job analysis, modification, and restructuring
        - Vocational placement and follow-up
        - Rehabilitation counselor in various settings
    - Certification: Nationally Certified through the Commission on Rehabilitation Counselor Certification (CRCC)
    - Involvement in employment preparation of students with disabilities: Work with students in a variety of employment settings and are considered related service providers
    - Hiring criteria: Many rehabilitation agencies hire people that are not certified rehabilitation counselors
- Describe special educators as having the following:
    - Professional preparation: Bachelor's Degree and sometimes Master's Degree with the following competencies
        - Curriculum development
        - Basic skills instruction
        - Classroom management
        - Professional consultation and communication
        - Teacher-parent-student relationship
        - Student-student relationship
        - Exceptional conditions
        - Referral
        - Individualized teaching
        - Professional values
    - Certification: Determined on a state level
    - Involvement in employment preparation of students with disabilities: Provide the following specialized services
        - Systematic training of vocational, home, leisure, and community skills in their natural setting
        - Vocational evaluation input by assisting in the collection and interpretation of data
        - Community/School education
        - Coordination of services while the student is in school
    - Hiring criteria: Certification in teaching special education is required
- Described vocational special educators as having the following:
    - Professional Preparation: This is a new field and they generally have some sort of vocational experience and have the following tasks
        - Identification of learning needs
        - Instructional planning
        - Modification of materials and environments

        - Communication
        - Preparation for employment
        - Counseling and career planning
        - Teaching life skills
    - Certification: Certified at the state level in some sort of vocational education
    - Involvement in employment preparation of students with disabilities: May work with students in a variety of settings including
        - Institutional settings
        - Self-contained schools or classrooms for specific populations
        - Cooperative work experience programs
        - Mainstreamed vocation classrooms
        - Resource and support programs
    - Hiring criteria: To hold an endorsement in vocational education or a related field.
- Recommends that schools use the transdisciplinary model when working with the above professions and transition from school-to-work for students with disabilities.

Theobald, R., Plasman, J., Gottfried, M., Gratz, T., Holden, K., & Goldhaber, D. (2019). Sometimes Less, Sometimes More: Trends in Career and Technical Education Participation for Students With Disabilities.

- Examined two sets of data for average number of CTE credits by disability type and lack of disability.
- Results indicated that more students with disabilities were enrolled in CTE courses than their non-disabled peers and the national average of CTE enrollment.
- Results also indicated that there was an overall decline of enrollment in CTE courses for students with disabilities and their non-disabled peers.
- Recommendations for future research include a further breakdown of career clusters and what enrollment looks like for students with different types of disabilities, as well as the impacts on post-secondary life.
- Implications for practice include encouraging students with disabilities to enroll in CTE courses.

Wagner, M. M., Newman, L. A., & Javitz, H. S. (2016). The benefits of high school career and technical education (CTE) for youth with learning disabilities.
***Journal of Learning Disabilities*, *49*, 658-670**

- Examined data from the National Longitudinal Transition Study–2 (NLTS2), to assess career and technical education (CTE) course taking of high school students with learning disabilities.

- Examined whether the type of CTE courses taken was related to full-time employment outcomes after high school and if those results differ over time.
- Results indicated the amount of CTE coursework taken by students with LD and the amount of engagement in a focused program of vocationally specific CTE courses.
- Results indicated CTE course taking overall was not significant for post-school employment outcomes for students with learning disabilities. However, there was a significant positive effect on post-school employment outcomes during the first two years after high school, when students participated in a focused concentration of vocational specific CTE courses.
- Implications for high school course programming and suggestions for future research are included.

Xue, X., Shaw, S., & Gordon. H. R. D. (2017). Quality indicators guiding secondary career and technical education programs of study. *Journal of Research in Technical Careers, 1*, 47-60.

- Used content analysis to identify quality indicators guiding secondary career and technical education 9CTE) in the United States.
- Reviewed publicly accessible secondary CTE standards/guidelines documents found from the websites of the 50 state department of education websites.
- Indicated that 24 of the 38 states (63.2%) with publicly accessible secondary CTE standards/guidelines had updated standards/guidelines in the last five years (i.e., 2012-2017).
- Identified 14 quality elements of secondary CTE programs of study each having 3010 key indicators (elements listed below).
    - Standards aligned and integrated curriculum
    - Course sequencing and articulation
    - Student assessment
    - Prepared and effective program staff
    - Engaging instruction
    - Access and equity
    - Facilities and equipment
    - Business and community partnerships
    - Career development
    - Career technical student organizations
    - Work-based learning
    - Data and program improvement
    - Legislation and policies
    - Program administration
- Found that 23 of the 38 states (60.5%) also had corresponding assessment tools for program evaluation (e.g., rubrics, checklists, worksheets).

- Implications for practice include adapting framework presented to establish and/or revise statewide secondary CTE programs of study guidelines and evaluation systems.
- Recommendations for research include investigation of quality indicators guiding postsecondary CTE programs.

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