September 2019

Career Exploration at the Middle School Level: Barriers and Opportunities

Samantha Godbey
University of Nevada, Las Vegas, samantha.godbey@unlv.edu

Howard R. D. Gordon
University of Nevada, Las Vegas, howard.gordon@unlv.edu

Career Exploration at the Middle School Level: Barriers and Opportunities

Samantha Godbey, *University of Nevada, Las Vegas*
Howard R. D. Gordon, *University of Nevada, Las Vegas*

Abstract

In this essay, we discuss issues related to the integration of career exploration in our nation's middle schools. We discuss the theoretical and empirical basis for career exploration at the middle school level and identify selected barriers to its effective implementation, namely with regards to career advising and parent involvement. We also propose new directions for practice and research as we work to counteract these barriers.

Introduction

The national momentum to advance career exploration for all middle school students continues to increase. For example, the Association for Career and Technical Education (ACTE) has developed a content strategy plan that includes middle school CTE/career development (DeWitt, 2018). Middle grades are a pivotal time to engage students on a path to career readiness and college (Kerka, 2000; Minichino, 2016; Southern Regional Education Board, 2011) and can be a key time to help students become aware of sectors that are likely to have a shortage of skilled workers (DeWitt, 2018). According to Advance CTE (2018), "Middle school Career Technical Education (CTE) has the power to expose students to college and career options and equip them with the transferable skills they need to plan for and succeed in high school and beyond" (para. 1). It also "adds relevancy to students' learning experiences by exposing them to real-world options and connecting academics to career and college options" (Advance CTE, 2018, para. 1).

In 2018, several states, including Maine, Nebraska, North Carolina, and Utah, expanded their CTE programs to middle grades for exploration of selected CTE clusters (ACTE, 2018; DeWitt, 2018; Minichino, 2016). A selected list of existing middle school CTE programs and activities is provided in Table 1. Currently, the Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV) can support CTE middle school programs as early as seventh grade. This legislation will be replaced by the Strengthening Career and Technical Education for the 21st Century Act of 2018 (Perkins V), which goes into effect on July 1, 2019; and while Perkins V allows federal funds to support CTE as early as fifth grade, it is not a requirement (Advance CTE, 2018).

Table 1

Selected States and Programs with Model CTE Programs in Middle Grades

State	Course/Activity Offered
Indiana	Career Clusters/Careers Pathways
Maryland	STEM
Missouri (West County Middle School)	Project-based learning
North Carolina	STEM
Ohio (Buckeye Career Center)	Career Carnivals/ Career Clusters
Oklahoma (Morrison High School- 7-12)	Agriculture, Business, Family and Consumer Sciences
Tennessee	STEM (sequence of three courses)
Utah	Competency-based approach to middle school CTE
Virginia (Fairfax County)	Business, Family and Consumer Sciences; Technology and Engineering
Wisconsin (DeForest Area School District)	Academic Career Planning (ACP)

Sources: ACTE, 2018; Advance CTE, 2018; Carroll, 2018; Southern Regional Education Board, 2011.

Moreover, variables such as attendance, grades, and engagement in middle school are strong predictors of high school completion (Balfanz, 2009; Hoff, Olson, & Peterson, 2015). One study found that sixth graders who failed math or English/reading, attended school less than 80% of the time, or received an unsatisfactory behavior grade in a core course had only a 10% to 20% chance of graduating from high school on time (Balfanz, 2009). As we consider integrating CTE/career exploration at the middle school level, it is important to note that "CTE in middle school can also serve as a key dropout prevention strategy, mitigating many of the challenges students face as they transition into high school, such as disengagement or lack of preparation" (Advance CTE, 2018, para. 1).

Two key pieces of recent legislation speak to the need to improve student career readiness. On December 10, 2015, Congress passed the Every Student Succeeds Act (ESSA) (P.L. 114-95), which requires states to articulate how they define and will support "well-rounded education" that prepares students for college and career. States should align these expectations across K-12 (Cushing, English, Therriault, & Lavinson, 2019). Additionally, Perkins V explicitly refers to career exploration at the middle school level, stating that CTE may include "career exploration at the high school level or as early as the middle grades" (Strengthening Career and Technical Education for the 21st Century Act of 2018, 2018).

Exploring broad career clusters contributes to student's awareness and understanding of the nature of work, the characteristics of today's workers, and the differences in work environments. Carnevale (2018) argues that:

> Because education and careers are inextricably bound, we need to take an "all-one-system" perspective that connects the education and career dots from middle school through college and early careers. Since the early 1980s, the K-12 system has lost ground in its ability to make students career-ready… (para. 4, 5)

With this paper, the authors hope to encourage attention to these issues at the middle school level, thus serving as a springboard for reducing the severe skills gap impacting many critical industries (Beach, 2013; Fletcher & Tyson, 2017; Gordon, 2014). We discuss the theoretical and

empirical basis for career exploration at the middle school level and identify selected barriers to its effective implementation, namely with regards to career advising and parent involvement.

Theoretical Base

Super's self-concept career theory guided this paper. Super has defined *career* as "the sequence of positions occupied by a person during the course of a working and work-related life" (Super, 1976, p. 26). Super's theory posits that career development is a stage-by-stage implementation of the self-concept in the world of work (Super, 1953, 1957; Super, Savickas, & Super, 1996). Drawing from developmental psychology, Super (1990) proposed that people are likely to progress through five stages of career development: *growth, exploration, establishment, maintenance,* and *decline*. Our central focus is on the growth and exploration stages, which are most developmentally appropriate at the middle school level and which, per Super's model, are essential to the career development process. During the growth stage, individuals experience the initial development of their self-concept and the world of work. During the exploration stage, developmentally appropriate tasks help individuals to narrow their interests; exploration becomes narrower over time in order to select an appropriate career for that individual. Super suggests that ages 11 to 14 are typically a time of transition between the growth and exploration stages. Further, Super states that "development through the life stages can be guided … by facilitating the maturing of abilities and interests" (1984, p. 195). According to Ochs and Roessler (2004), "Failure to successfully meet the challenges of the exploration interferes with later adjustment and advancement outcomes" (p. 224). We argue then that this time of transition, which corresponds to the middle school years, is an important time for this facilitation of abilities and interests. It is essential that we provide deliberate opportunities for career exploration at the middle school level.

The Importance of Career Exploration in Middle Grades

The Southern Regional Education Board (2011) issued a call for improvement of middle schools, noting that it if students are to be successful in

high school, college, and careers, they must build a foundation for that success in middle school. They urged school to provide students with "richer learning experiences that allow them to explore their interests, aptitudes and talents and to relate their learning to future education and career choices" (SREB, 2011, p. 4). However, our reading of the literature revealed few empirical studies that have explicitly examined career exploration at the middle school level.

Research continues to document that students of middle school age are coping with selected challenges of cognitive, physiological, and psychological development associated with puberty (ACTE, 2018; Cohen, Blanc, Christman, Brown, & Sims, 1996; O'Brien, Dukstein, Jackson, Tomlinson, & Kamatuka, 1999). Nonetheless, Curry and Milsom (2017) argue that these same developments position middle grade students to interact in meaningful ways with career-based activities, noting that "the development of these cognitive skills helps sixth- and seventh-grade students apply logic and reasoning to how they conceptualize careers, understand college options, and project future actions necessary for workplace success" (p. 213). Curry and Milsom (2017) also note that during early adolescence, students are increasingly aware of their own interests and abilities, as well as their values, and they argue that this self-awareness is "the key to early adolescent career growth" (p. 215). This aligns well with Super's career development theory. Super (1957) argued that:

> Adolescence is clearly a period of exploration. It is a period in which boys and girls explore the society in which they live, the subculture into which they are about to move, the roles they may be called upon to play, and the opportunities to play roles which are congenial to their personalities, interests, and aptitudes. (p.81)

Research has also shown that career exploration can have a positive effect on school engagement at the middle school level. Toepfer (1994) argues that when middle school students are exposed to career exploratory experiences, they are more likely to demonstrate increased motivation, self-esteem, and awareness of the world of work. Findings from a 2012 Gallup Poll of 500,000 students in grades 5 through 12, from more than 1,700 public schools in 37 states, suggested that student engagement declined over time

(Busteed, 2013). Nearly 80% of the elementary students were engaged with school. However, by middle school, engagement had declined to approximately 60% and to only 44% by high school (Busteed, 2013). In contrast, Perry, Liu, and Pabian (2010) reported that middle and high school students with greater exposure to career-relevant planning were more likely to be engaged in their education.

Career Advising Barriers

As we consider increasing career exploration at the middle school level, we must consider barriers to career advising. Frank Parsons (1909), the founding father of career guidance, wrote:

> We guide our boys and girls to some extent through school, then drop them into this complex world to sink or swim as the case may be. Yet there is no part of life where the need for guidance is more emphatic than in the transition from school to work—the choice of a vocation, adequate preparation for it, and the attainment of efficiency and success. (p. 4)

Nonetheless, Barabasch and Dykeman (2012) noted that since the publishing of Parsons' work on career counselling, "the history of career counselling (CC) and CTE over the subsequent 100 years is a history of isolated advances and systemic stasis" (p. 155). As an example of the current state of career counseling at the secondary level, only 31% of states provide funding for full- or part-time positions with the primary responsibility for career development at the middle school level, and 58% of states do so at the high school level (McFadden & Curry, 2018, p. 48).

Numerous additional barriers to career advising exist. For example, a report from the Manufacturing Skills Standards Council and SME identified barriers such as inadequate training and certification of career counselors, increasing student to counselor ratios, and the amount of time counselors must spend on administrative and disciplinary issues (Reddy, Rauschenberger, Hurt, & Bray, 2015). They also noted that many career counselors lack an awareness of or access to market data and other information about career pathways, which limits students to career pathways to which they are exposed in their own direct experience (Reddy et al., 2015). Reddy et al. also identified procedural

barriers including a lack of attention to career counseling in public schools and the fact that the limited career counseling that takes place does not occur until tenth or eleventh grade (2015).

A lack of alignment across grade levels also serves as a barrier to effective career advising. Some key findings from a survey by Advance CTE and the American School Counselor Association include that only 4% of states believe career advising and development efforts are closely aligned across the elementary, middle and high school levels and only 9% believe there is close alignment between middle and high school (McFadden & Curry, 2018, p. 47).

Parent Involvement

The Southern Regional Education Board (2011) encouraged schools to deeply involve parents and families at the middle school level by providing "consistent communication" and allowing parents "to be fully engaged as students prepare their academic and career plans" because decisions at this level will affect the rest of the students' lives (p. 5). Further, a survey of Oklahoma parents (N = 500) revealed that most parents (72%) agreed that schools should begin to teach students about career exploration and opportunities in middle school or earlier, compared to 28% in high school (PGI Research, 1998). What, then, are the barriers to parent involvement in middle grades?

Ames and Dickerson (2004) identified five barriers impacting parent involvement when children reach middle grades. Parents feel that because their adolescents begin to assert their independence, parent involvement is no longer necessary at the middle school level. They also lack awareness of middle school itself, as many parents attended junior high schools themselves. Parents also worry that they are no longer able to help their children with school work as it becomes more advanced. Related to this, as coursework and programs become more specialized during middle school, parents are sensitive to gaps between themselves and the school culture. Finally, Ames and Dickerson (2004) argue that middle schools often lack the resources to establish and maintain effective family-school partnerships.

Some barriers to parent involvement apply across K-12 education. Unfortunately, these issues are not new: a national survey of public K-8 schools in 1996 found that 87% of schools

perceived parent lack of time to be a barrier to their involvement (National Center for Education Statistics, 1998). Approximately half of the surveyed schools (56%) also recognized lack of time on behalf of school staff, as well as insufficient staff training regarding working with parents (48%), to be barriers to parent involvement. Although this survey was conducted over 20 years ago, the results mirror previous studies pertaining to barriers to parent involvement in K-12 school programs. We were unable to locate recent research to suggest that these findings would be much different as of today. For example, a recent parent involvement survey (Oroola, Inc., 2019) of 150 parents from 52 elementary, middle, and high schools in the San Francisco area identified the following reasons for low parental engagement in elementary, middle, and high schools: time constraints, language barriers, lack of knowledge, inconvenience, and lack of motivation. Murray et al. (2014) found similar barriers among African American parents in urban middle schools, with work and scheduling issues serving as barriers, as well as negative perceptions of parent-teacher interactions at their children's schools.

Implications and Challenges for Future Directions

Middle schoolers participating in career exploration are more likely to enroll in high level courses and have higher self-esteem (America's Promise Alliance, 2019). To strengthen career and technical education and exploration at the middle school level, schools should consider each of the following. Table 1 is also a resource in looking for models in developing or improving career programs.

Work closely with career guidance professionals to address the barriers noted here. Not all of these barriers can be addressed at the school level, but schools can provide explicit training and ongoing support to integrate career guidance during middle school (Ames & Dickerson, 2004; Association for Career and Technical Education, 2018; National Center for Educational Statistics, 1998; Oroola Inc., 2019).

Exercise flexibility in offering the 16 career clusters to middle school students. It is not necessary at this age to be comprehensive in covering the 16 clusters. Schools might select a few to focus on or

integrate coverage of multiple clusters in a single course as is appropriate for their context (Advance CTE, 2018).

Focus on concerns relevant to early adolescents. Adolescents at this age are ready to transition into a more mature exploration of what careers might be of interest to them. As they develop a clearer sense of their own interests and aptitudes, they are developmentally prepared to learn about a broad range of options for their futures (Kosine & Lewis, 2008). Furthermore, Curry and Milsom (2017) note the importance of providing career options that are not explicitly tied to gender. At this age, schools can also work to address deficiencies in soft skills by working with students on skills essential to professional success such as conflict resolution and time management.

Introduce career-related projects at an early stage. As schools implement these projects at the middle school level, they should also consider using the Engaging Instruction element of the ACTE Quality CTE Program of Study Framework to enhance specific instructional strategies (Imperatore, 2019; Xing, Shaw, & Gordon, 2017). Examples of project-based and inquiry-based learning and other tools are linked from ACTE's website (ACTE, 2019).

Establish partnerships with local community and business leaders. Middle school students can learn from these professionals about a range of careers. These partnerships might also include job shadowing opportunities and career fairs at the middle school level (Reddy et al., 2015). Additionally, schools should consider Career and technical student organizations (CTSOs) when they look for community partnerships.

Work with policymakers to ensure adequate funding of CTE programs at the state and national levels. Career advising generally falls under this broader CTE funding (Perkins Collaborative Resource Network, 2019). Continued advocacy is needed to ensure that funding is directed to career advising beginning at the middle school level. This increased funding is essential in order to counteract some of the systemic and procedural barriers to career advising.

Nurture parent involvement. We must also remember that parents are our allies in this work of preparing their children for their futures. Administrators and teachers should make parent involvement a priority and support that involvement by recognizing and working to remove the barriers to parent involvement the barriers enumerated in this paper. This includes identifying communication strategies appropriate to the school community. For some schools, sending home notes with the students may be sufficient, while others might schedule regular in-person sessions. Schools should also develop malleable policies of parental involvement that offer a range of ways in which parents can participate in the activities of the school, particularly with reference to activities related to career development. It is also important to incorporate parents and community members into decision-making processes. Involving parents in the planning of events and programs around career exploration can help to counter the most common barrier to parent participation – a lack of time. This can also help engage those parents who perceive themselves as being unwelcome and separate from their children's academic lives when they progress to middle school (O'Donoghue, 2014).

Finally, not only should we work to increase access to career exploration at the middle school level, we must also conduct additional research in this area. Research is needed into what efforts schools are currently using to help middle graders engage in career awareness and exploration. Additionally, further research should be conducted on best practices for training middle school counselors in the delivery of career development curriculum (Ting et al., 2012; Womble, Hall, & Turner, 1997). Middle school educators and postsecondary researchers should consider conducting studies pertaining to the following issues related to career development theory: the extent to which and ways in which parents influence career development and the ways in which early environment influences career development.

Conclusion

CTE is a pivotal player in career exploration and guidance for preparing students for success. We encourage our readers to view middle school as a stage when students are ready to explore future goals and careers due to their development of self-awareness at this age. To this end, "It's not always about finding what they like, it can also

be about what they don't like" (Carroll, 2018, p. 13).

We conclude this essay with a reiteration of our call to action to colleagues and policymakers that we prioritize programming and resources for middle school career exploration. The challenges discussed in this essay are not easily countered. Nonetheless, as we have discussed, career exploration at the middle school level is not only developmentally appropriate but imperative given its positive effects on the children who will constitute our future workforce.

References

Advance CTE. (2018). *Expanding middle school CTE to promoting lifelong learner success*. Retrieved from https://careertech.org/resource/expanding-middle-school-cte

America's Promise Alliance. (2019). *Why career exploration matters*. Retrieved from https://www.americaspromise.org/why-career-exploration-matters

Ames, N., & Dickerson, A. (2004). Five barriers to parent involvement. *Middle Matters, 13*(1), 1-3.

Association for Career and Technical Education. (2018). *Career exploration in middle school: Setting students on the path to success*. Retrieved from https://www.acteonline.org/wp-content/uploads/2018/02/ACTE_CC_Paper_FINAL.pdf

Association for Career and Technical Education. (2019). *Engaging instruction*. Retrieved from https://www.acteonline.org/professional-development/high-quality-cte-tools/engaging-instruction/

Balfanz, R. (2009, June). *Putting middle grades students on the graduation path: A policy practice brief.* Everyone Graduates Center and Talent Development Middle Grades Program. Johns Hopkins University. Retrieved from https://www.amle.org/portals/0/pdf/articles/Policy_Brief_Balfanz.pdf

Barabasch, A., & Dykeman, C. (2012). Career counselling/career and technical education. In A. Barabasch & F. Rauner (Eds.), *Work and education in America: The art of integration* (pp. 155-174). London, UK: Springer.

Beach, G. J. (2013). *The U.S. technology skills gap: What every technology executive must know to save America's future*. Hoboken, NJ: Wiley & Sons.

Busteed, B. (2013). *The school cliff: Student engagement drops with each school year*. Retrieved from https://news.gallup.com/opinion/gallup/170525/school-cliff-student-engagement-drops-school-year.aspx

Carnevale, A. P. (2018, June 22). The Education and Labor departments were made for each other. *The Washington Post*. Retrieved from https://www.washingtonpost.com/news/grade-point/wp/2018/06/22/the-education-and-labor-departments-were-made-for-each-other/

Carroll, S. (2018). Make connections with careers. *Techniques, 93*(3), 10-13.

Cohen, J., Blanc, S., Christman, J., Brown, D., & Sims, M. (1996). *Girls in the middle: Working to succeed in school*. Washington, DC: American Association of University Women Educational Foundation.

Curry, J. R., & Milsom, A. D. (2017). *Career and college readiness counseling in p-12 schools* (2nd ed.). New York, NY: Springer.

Cushing, E., English, D., Therriault, S., & Lavinson, R. (2019). *Developing a college- and career-ready workforce: An analysis of ESSA, Perkins V, IDEA, and WIOA*. American Institutes for Research. Retrieved from https://www.air.org/sites/default/files/Developing-a-Career-Ready-Workforce-Brief-March-2019.pdf

DeWitt, S. (2018). Why middle school? Why now? *Techniques*, *93*(1), 14.

Fletcher, E. C., & Tyson, W. (2017). Bridging technical skills gaps between high school students and local employers. *Journal of Research in Technical Careers, 1*(1). doi.org/10.9741/2578-2118.1001

Gordon, H. R. D. (2014). *The history and growth of career and technical education in America* (4th ed.). Long Grove, IL: Waveland Press.

Hoff, N., Olson, A., & Peterson, R. L. (2015, March). *Dropout screening and early warning*. Topic Brief. Lincoln, NE: Student Engagement Project, University of Nebraska-Lincoln and the Nebraska Department of Education.

Imperatore, C. (2019). Engaging instruction. *Techniques, 94*(4), 12-13.

Kerka, S. (2000). *Middle school career education and development*. Practice Application Brief No. 9. Retrieved from https://www.calpro-online.org/ERIC/docs/pab00018.pdf

Kosine, N. R., & Lewis, M. V. (2008). Growth and exploration: Career development theory and programs of study. *Career and Technical Education Research, 33*(3), 227-243.

McFadden, A., & Curry, J. R. (2018). State leaders' and school counselors' roles in elementary and middle school career development: Research findings and promising practices. *Techniques, 93*(3), 46-49.

Minichino, M. J. (2016). Career and technical exploration in middle school. *Techniques, 91*(2), 46-49.

Murray, K., Finnigan-Carr, N., Jones, V., Copeland-Linder, N., Haynie, D. L., & Cheng, T. L. (2014). *Barriers and facilitators to school-based parent involvement for parents of urban middle school stude*nts. doi.org/10.1177/2158244014558030

National Center for Educational Statistics. (1998). *Perceived barriers to parent involvement in school programs*. [NCES 98032]. Retrieved from https://nces.ed.gov/surveys/frss/public ations/98032/index.asp?sectionid=7

O'Brien, K. M., Dukstein, R. D., Jackson, S. L., Tomlinson, M. J., & Kamatuka, N. A. (1999). Broadening career horizons for students in at-risk environments. *Career Development Quarterly, 47*(3), 215-229. doi.org/10.1002/j.2161-0045.1999.tb00732.x

Ochs, L. A., & Roessler, R. T. (2004). Predictors of career exploration intentions: A social cognitive theory perspective. *Rehabilitation Counseling Bulletin*, *47*(4), 224-233.

O'Donoghue, K. L. (2014). *Barriers to parental involvement in schools: Developing diverse programs to include unique demographics*. Education and Human Development (Master's thesis).

Oroola, Inc. (2019). *Five barriers to active parental involvement in schools*. Retrieved from http://www.oroola.com/resources/five-barriers-active-parental-involvement-schools/

Parsons, F. (1909). *Choosing a vocation*. Boston, MA: Houghton Mifflin.

Perkins Collaborative Resource Networking (PCRN). (2019*). Legislation*. Retrieved from https://cte.ed.gov/legislation/about-legislation

Perry, J. C., Liu, X., & Pabian, Y. (2010). School engagement as a mediator of academic performance among urban youth: The role of career preparation, parental career support, and teacher support. *Counseling Psychologist, 38,* 269-295. doi.org/10.1177/0011000009349272

PGI Research. (1998). *Oklahoma School-to-Work-System: Parents with children at home statewide survey*. Oklahoma City, OK: PGI, L.L.C.

Reddy, L., Rauschenberger, J., Hurt, P., & Bray, J. (2015). *Transforming career counseling: Bridging school to career in the workforce of the future*. SME, Manufacturing Skills Standards Council.

Southern Regional Education Board. (2011). *A new mission for the middle grades: Preparing students for a changing world*. Retrieved from https://www.sreb.org/publication/new-mission-middle-grades

Strengthening Career and Technical Education for the 21st Century Act of 2018, Public Law No: 115-224 (2018). Sec 3.5.d

Super, D. E. (1953). A theory of vocational development. *American Psychologist, 22,* 191-226.

Super, D. E. (1957). *The psychology of careers: An introduction to vocational development*. New York, NY: Harper & Row.

Super, D. E. (1976). *Career education and the meaning of work*. Monographs on Career Education. Washington, DC: The Office of Career Education, U.S. Office of Education.

Super, D. E. (1980). A life-span, life space approach to career development. *Journal of Vocational Behavior, 16,* 282-298.

Super, D. E. (1984). Career and life development. In D. Brown & L. Brooks (Eds.), *Career choice and development* (pp. 192-234). San Francisco, CA: Jossey-Bass.

Super, D. E. (1990). A life-span, life space approach to career development. In D. Brown, L. Brooks, et al. (Eds.), *Career choice and development theories to practice* (pp. 197-261). San Francisco, CA: Jossey-Bass.

Super, D. E., Savickas, M. L., & Super, C. M. (1996). The life-span, life-space approach to careers. In D. Brown & L. Brooks (Eds.), *Career choice and development* (3rd ed., pp. 121-178). San Francisco, CA: Jossey-Bass

Ting, S. R., Leung, Y. F., Stewart, K., Smith, A. C., Roberts, G. L., & Dees, S. (2012). A preliminary study of career education in middle school. *Journal of Career and Technical Education*, 27(2). doi.org/10.21061/jcte.v27i2.562

Toepfer, C. (1994). Vocational/ career/ occupational education at middle level: What is appropriate for young adolescents? *Middle School Journal*, 25, 59-65.

U. S. Department of Education. (2015). *Every Student Succeeds Act*. Retrieved from http://www.everystudentsucceedsact.org/

Womble, M. N., Hall, H. C. and Turner, J. P. (1997). Middle school vocational teachers' knowledge of the characteristics of at-risk learners. *Journal of Career and Technical Education*, 14(1). doi.org/10.21061/jcte.v14i1.681

Xing, 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*(2), 47-60. doi.org/10.9741/2578-2118.1012