

THE INTEGRATION OF CAREER AND TECHNICAL EDUCATION (CTE) AND
ACADEMIC CURRICULA: AN EFFECTIVE MODEL FOR TEACHERS

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THE INTEGRATION OF CAREER AND TECHNICAL EDUCATION (CTE) AND
ACADEMIC CURRICULA: AN EFFECTIVE MODEL FOR TEACHERS

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By

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Abstract

The Carl D. Perkins Vocational and Career and Technical Education (CTE) Acts from 1990, 1998, and 2006 include federal directives for CTE programs and curriculum to be integrated with academic content. Each reauthorization and review of the Carl D. Perkins Act has provided a more inclusive and expanded definition of integration, with the intention that learning become relevant, rigorous, and effective in preparing students for a career and/or college. My CTE project examines the literature on integration, discusses its important role in CTE, outlines implications to education, and creates an integrated CTE curriculum guidebook and website for teachers. The objective of this project is that teachers will use the guidebook and accompanying website as instructional tools in their implementation efforts. The intended benefits include increasing teachers' instructional abilities, enhancing student learning, and supporting ongoing integration efforts.

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Dedication

Thanks to my father and family for their support throughout the years. I am dedicating this project to my family for their support and to my amazing wife, Mary Gullett. I would also like to dedicate this project to my five-year-old daughter (Giannaleah Gullett), who will never know how many nights I worked on my CTE project while she was fast asleep. Also, I would like to dedicate my project to our new baby girl, Vivian born on September 16, 2015. I love you Giannaleah and Vivian!

Chapter One Introduction

The majority of my career in education has been as a social studies or history teacher within Alaska. As a young teacher, I was interested in making curriculum and instruction engaging and meaningful, and to have an impact on student learning in ways that would make history more relevant to students. I started to become aware of career and technical education (CTE) as I started to explore integrating professional technical writing and employability skills into my history course. I found that integrating CTE and academic curricula was natural for me. As I implemented more and more integrated career, college, and employability skills content into my history courses, the result was a high level of student engagement and learning. I found such a high rate of success that I started experimenting with other ways that I could blend the two. Over time I developed an effective method and process of integrating curricula within my own classes. I continued with the various methods I had been exploring when I served as a teacher at Mat-Su Career and Technical High School (CTHS) in Wasilla, Alaska, and as Principal and CTE Director of Hoonah City Schools in Hoonah, Alaska.

The topic of integration is important to CTE because it is written into the federal Carl D. Perkins Vocational/Career and Technical Education Acts of 1990, 1998, and 2006 (Gordon, 2008), which require integration of CTE and academic curricula. Literature exists on the subject, but it is extremely limited. There are also insufficient tools, such as a curriculum guidebook, that teachers can use to create and implement this work within their classes or CTE programs.

In the summer of 2013, Superintendent Michael Johnson of the Copper River School District taught a graduate class on curriculum and student performance in the Educational Leadership program for the University of Alaska Anchorage (UAA). The framework he

introduced to our aspiring superintendent class was adopted from Ewy's (2009), *Stakeholder Driven Strategic Planning in Education*. Ewy outlines considerations for educational leaders, explaining how to create a strategic plan for the district and the school board that will improve student learning, increase or create effective curriculum, and provide professional development for teachers. Superintendent Johnson modified this work by defining five essential themes that were applicable to the Copper River School District. Interestingly, these five essential themes can also serve as framework for integration: effective curriculum, effective instruction, effective assessment, effective enrichment, and effective intervention. Shortly after the conclusion of the class, I contacted Mr. Johnson and asked if I could use his framework for my integrated CTE and academic curriculum project. He was excited about the project and gave me permission to use the framework for my own work. I began to envision my project as an application of these essential themes to create effective curriculum and instruction through integrating CTE and academic curricula.

Problem Statement

This project addresses two identified needs: teacher engagement in curriculum writing, and lack of training and professional development for teachers. First, too few teachers are involved in writing curriculum. In many districts it is part of their policy and process to create a yearlong curriculum review committee to critique, revise, and write curriculum. In my experience, the curriculum rarely changes much from year to year. Usually, senior teachers are invited to join the committee, because they are extremely knowledgeable in their content and concepts. However, I perceive the curriculum writing process should engage more teachers for a higher level of effectiveness in the final product. Recent education policy including state accountability requirements, No Child Left Behind, and the Common Core Standards puts

control over curriculum in the hands of centralized government agencies, and therein excludes teachers from these processes. Thomas (2012) suggests that these are implemented as a means to increase teacher quality, but as the localism movement notes, this creates major problems, including lost teacher autonomy. Lost teacher autonomy in curriculum development and instruction restricts the professional growth of the educator; Newfield (2001) explains that teachers' influence in the curriculum process is essential to creating an effective final product.

Velthuis, Fisser, and Pieters (2012) explored reasons for lack of teacher involvement in the United States educational curriculum development, and noted a lack expertise in developing curriculum, unpacking pedagogical content knowledge, and having expertise in creating curricular consistency. They state that involving teachers in this process will require addressing gaps in training and tools needed to design and write curricula. Wei, Andree, and Darling-Hammond (2009) examined teacher development in nations with successful educational systems; Finland, Sweden, Japan, South Korea, Singapore, the United Kingdom, and Australia are excelling in education, and they attribute this, in part, to investment in teacher professional development and creating trainings for educators in how to collaborate on curriculum and write curriculum. Commonalities identified include: time for collaboration, ongoing professional development, extensive opportunities in professional development, supportive programs for new teachers, school governance, and teacher involvement in curriculum writing. The identified gaps in these areas are sites of opportunity in the US education system.

Solution Statement

Improvements in education derive from a focus on learning for all students, quality teaching and learning, quality curriculum, quality instruction, and collaborative relationships (Bergeson, T. & Heuschel, Washington State Office of the Superintendent of Schools Report,

2004). Johnson's (2013) work on systematic school improvement focuses on collaborative efforts by all members involved toward developing effective curriculum, instruction, assessment, enrichment, and interventions. Though the curriculum process is approached differently at different educational institutions, Tews (2011) and Fennessy (2008) explain that a philosophy and program that blend CTE and academic curricula can facilitate student learning. However, teachers lack opportunities to become engaged in curriculum development and participate in professional development opportunities that encourage new instructional practices. There is an opportunity to create a clear and well-defined method.

I have found in my professional experiences as a teacher, principal, and CTE director that a guidebook and website can be helpful tools for teachers who wish to design effective and integrated curriculum. My objective was to assist teachers in better understanding effective curriculum design, improve instructional abilities, and increase student achievement. Every new idea needs a place to start, and this project provides a platform to begin the discussion. My initial contribution is the curriculum guide and website, which provide a forum for communication and feedback around the process. The integration of CTE and academic curricula is an important topic, and I am excited to see the extent to which this project, guidebook, and website can have an impact on student learning and teacher engagement.

Chapter Two Review of the Literature

History of Integration in Education and Career and Technical Education

From the time of the Greeks and Romans, education seems to be in partnership with economics in the ancient civilizations (Gordon, 2008). The Renaissance and the Enlightenment were eras of expansion in education, including the trades (Scott & Sarkees-Wircenski, 2008). During the 1700s and 1800s, many schools in Europe adopted a vocational vision to education, and integrated trades with academic content. The extension of vocational and academic integration would follow from the Russian model created by Victor Della-Vos (Scott & Sarkees-Wircenski, 2008). The Russian School transitioned curriculum ideas into a blended or integrated school mission that provided students both manual and academic training or skills (Gordon, 2008).

The Sloyd School in Sweden was adapted from the Russian model. Brought to the United States in 1885, it brought new instructional methods and it marked a historical stamp on integrated curriculum between vocational and academic content (Olafesson & Thorsteinsson, 2010). This model was created at the height of the industrial revolution, which witnessed an increase in significant rural to urban migration, and was a system designed to move people from agricultural work into industrial sectors. Woodward adopted this system and assimilated it to the Manual Training School of Washington University in St. Louis (Gordon, 2008). The Sloyd School is one of the earliest examples of teacher development in teaching skills for vocational education. This model was significant in that it was a training program for teachers to learn techniques for teaching the vocational trades, with an emphasis on mental and manual training. This focus on the development of the learner, rather than merely the development of a skill, was revolutionary at the time (Gordon, 2008). Effectively, this was the beginning of experience-

based training. Both the Sloyd School and the Russian vocational model would be implemented into early American vocational programs (Scott & Sarkees-Wircenski 2008). This important time in history and the contributions to vocational education would become the foundations of career and technical education (CTE).

The 1890s witnessed a struggle over who would control curriculum in American education; this was influenced by a decade of recession, changing global economics, philosophy, social changes (urbanization and industrialization), and policy-driven legislation connecting curriculum to progressing economics (Kliebard, 2004). By the early 1900s, John Dewey was advancing constructivist theories of education, focused on applicability and real-life experience in the classroom. At the same time, Charles Prosser argued that the curriculum of the time period was too focused on the college track and did not contain enough real-life vocational concepts. He argued for differentiation in the curriculum and meaningful vocational programs. Prosser would become one of the main architects of the Smith-Hughes Act.

The Smith-Hughes Act of 1917 enacted by the United States Congress is the first specific legislation in which the government influenced curriculum in the interests of economics and national security. A common pattern of wartimes is economic expansion, and World War I witnessed expansion of industry and technology. Responding to those needs, vocational education supplied skilled workers and addressed the nation's national security needs (Gordon, 2008; Scott & Sarkees-Wircenski, 2008). Though the Act provided guaranteed funds exclusively for vocational programs, an unfortunate and unintended consequence was a separation of vocational and academic content in the schools. This impeded integration for nearly a hundred years.

An increased interest in math and science skills was seen with the Soviet Union launching Sputnik in 1957, and the United States realizing that the space race was on. With space being a primary objective of the Federal Government in the late 1950s and 1960s, it would quickly filter down into education by encouraging more math, science, and vocational programs in schools. Vocational education would continue to connect to economics and national security through the National Defense Education Act of 1958. By the 1960s and through the Vocational Education Act of 1963, the role of vocational education in supporting economics and national security was even more pronounced. Vocational legislation continued to be reauthorized with various changes in 1968, 1972, and 1976. The changes that occurred in curriculum during this time are clearly linked to changes in economics and advancements in technology (Gordon, 2008).

In 1984, the Vocational Education Act was renamed the Carl D. Perkins Vocational Education Act. The Carl D. Perkins Act would be reauthorized to make various changes to both vocational and general education, and with each reauthorization, integration increasingly became a central theme and was furthered expanded. The significant point is that they could actually work together, as Carl D. Perkins lifted financial restrictions that had separated them. Reauthorization in 1990 and 1998 shifted the focus of vocational education to preparing students for careers, which is the foundation of curriculum integration models, most notably the creation of Tech Prep in 1990.

The reauthorization in 2006 renamed the legislation as the Carl D. Perkins Career and Technical Education Act. Along with the significant development that changed the terminology from vocational education to career and technical education, the new aims focused on academic

achievement of students in CTE programs, and this change lessened the gap between academic and vocational tracks by acknowledging and focusing on career paths, rather than jobs. It developed integrated connections between secondary and postsecondary education by creating the foundation for Career Pathways as holistic learning experiences. The revisions included integration of technology, industry standards, and employability skills. Most important was the integration of CTE and academic curriculum (Scott & Sarkees-Wircenski, 2008). The evolution of legislation established the mandate for integration of CTE and academic curriculum. Often (2011) reports that since that time, states are making significant progress in this arena, though notably there is the opportunity to do more, particularly in math.

The Carl D. Perkins Career and Technical Act of 2006 requires several different areas of reporting, data, and accountability (DeWitt, 2010). I perceive this emphasis to follow a well-documented dearth of evidence-based and best practice literature on CTE programming following Carl D. Perkins I and II (see Bragg, 1995; Brand, 2008; Brown, Pucel, Twohig, Semler, & Kuchinke, 1988; DeFeo, 2015; Lambeth, Joerger, & Elliot, 2009; Turnipseed, 2008). These areas must meet the requirements that several organizations developed for performing evaluations and assessments of CTE programs.

Early and Contemporary Examples of Integrated Curricula

Though vocational and academic content were separated by federal legislation between 1917 and 1984, there are a few notable examples of effective programs that integrated content from both tracks, most notably the Dewey School, which operated from 1898-1948; Houston City Schools, established in 1924; the Lincoln School, established in 1926; and the Bank Street Workshops for teacher professional development, which operated from 1943-1948 (Mickerel, 1998). Though none lasted long, analysis of these models found that even early efforts to

integrate had demonstrable teaching and learning impacts including teacher creativity, enthusiasm, and innovation the curriculum and instructional methods.

Mickerel, (1998) identified some significant early examples of whole-school integration, and there are also some significant and effective modern models for school wide integration, including career academies and small learning communities (see Kuo, 2010), and career and technical high schools (see Helfman, 2013; Kuo, 2010). The Career Pathways initiative also focuses on the integration of content across disciplines as it links vocational professional content (see Folkers, Green, Hinckley & Mills, 2012; Kozumplik, Nyborg, Garcia, Cantu, & Larsen, 2011; Lekes, Bragg, Loeb, Oleksiw, Marszalek, Brooks-LaRaviere, Zhu, Kremindas, Akukwe, Lee, & Hood,, 2007). Though there are few examples of these programs and even fewer empirical studies, a common theme is demonstrable benefits to students and teachers.

Student Benefits of Integration

Integrated CTE and academic curricula provide students with rigorous and relevant experiences. These are foundational to current CTE objectives of preparing students for “a wide range of high-wage, high-skill, high-demand careers” (ACTE, 2015). Available research demonstrates that educational programs that integrate CTE and academic curriculum show a variety of benefits for students. Students who are in an integrated CTE and academic model have increased engagement, an increase in overall academic abilities, and increased achievement in postsecondary school (Gentry, Peters, & Mann, 2007).

Overall academic abilities. Recent research in the integration of CTE and academic curricula shows a higher overall academic achievement in students involved in these programs (Aliaga, Kotamraju, & Stone, 2014; Whittaker, 2008). Even research conducted prior to mandates for integration found positive impacts on student academic achievement (Evans &

Burke, 1992). Tews (2011) found that when language arts and math are integrated with CTE, students showed significant improvement in formative and summative assessments. Helfman's (2013) account and observations of two schools serving at-risk students on the Navajo reservation doing school-wide integration noted that students who participate in this experience have a higher than 90% graduation rates, and several students received prestigious scholarships. In a more rigorous analysis of integrated project-based science curriculum in a large urban district in the Midwest serving a high population of underrepresented minority and low-SES students, Kanter & Konstantopoulos (2010) noted that project-based curriculum – including those that blend CTE with academic content – had a significant impact on minority students' test scores; those who received the intervention improved, on average, half a grade level.

Engagement. Eighty-one percent of high school dropouts report that relevant, real-world learning experiences would have prevented them from leaving secondary education (ACTE, 2015). An integrated curriculum model addresses this statistic by creating relevance, which engages students in learning, and it may be particularly effective for at-risk youth (Catsellano & Stone, 2003). Moye's (2011) classroom observations noted that students who participated in interdisciplinary curriculum learning activities were more engaged, and benefitted significantly when content was presented concurrently in CTE and academic classes. Brewer (2004) found that programs at CTE high schools create higher standards of learning, which result in a more rigorous curriculum. Gentry et al., (2007) and Brewer (2004) note the role of integrated curriculum in developing student autonomy and engagement. When they are able to direct their own learning, students get excited about their course of study, behave more maturely, do Career and Technical Student Organizations (CTSO), and find content is relevant when it is interactive and applied (Gentry et al., (2007). In sum, students show more interest in their course of study.

CTE is not limited to just a few students or programs. Aliaga et al., (2014) document that most high school students take at least one CTE class, and 16% take three or more. Aliaga et al., (2014) note that CTE and rigorous academics are not mutually exclusive; students can take CTE along with advanced academic requirements, and they generally like the combination of rigor and relevance. Southerland, Levine and Barth (2005) found students who participate in a program designed to help them engage in career exploration and planning are able to make better connections between school and real life, and because of this engagement, were more likely to stay in school; they also gained an increase in self-esteem, engagement, and career content knowledge. This was especially true for high-poverty students. Whitaker (2008) identified similar benefits. She noted that as students develop employability skills, professional and technical writing, and/or specific concepts of a certain CTE or career pathway, they are more engaged as they are able to connect curriculum to their career interests. She says,

Students benefit from a clearly articulated system of career education because they begin to see the connections between their education-and their future as competent and capable workers. Instead of drifting from room to room in their school, they are connected to an exciting career future. Their learning becomes relevant and classes become related.

Students have the ability to find careers that match their own unique talents and abilities.

With the help of teachers, counselors, and other career educators, students are able to navigate their way through the educational system. (p. 23)

Jackson and Perry (2006) describe this as career “planfulness,” defined as students’ knowledge base of careers and a personal goals. They posit that this planfulness creates the opportunity for a more engaging high school experience.

College success. College success is a high profile topic at present. Current initiatives in the state of Alaska include the Department of Education and Early Development's creation of the *Alaska Performance Scholarship*; United Way's *90 by 2020* initiative to ensure a 90% high school graduation rate by 2020, the Alaska Postsecondary Access and Completion Network's *65 by 2025 – Alaska Can!* initiative to increase the number of Alaskan enrolling and succeeding in postsecondary education (including CTE fields), and the University of Alaska's emphasis on dual credit and college transition as noted in its *Shaping Alaska's Future* plan. These initiatives are intended to address a performance gap. At present, a recent research discovered that Alaska has a 71.8% high school completion rate, which ranks it the 6th lowest in the nation (Kerrigan, 2015). Though over 60% of Alaska high school graduates attend college, and about 40% participate in some form of job training or apprenticeship, of those who attend college or postsecondary education programs, approximately one-third complete a degree within six years (Alaska Department of Labor & Workforce Development, 2012), and many require developmental education when they enroll in postsecondary institutions (UA Office of Institutional Research, 2015).

Though Alaska's scores are lower than national averages, college and career readiness is a nationwide need. For example, Barnes & Slate (2014) note the majority of students graduating high school in Texas were not ready for college-level academic work, per their ACT test scores. For students who enter college needing developmental education, chances of retention and graduation decrease significantly (Kirst & Venezia, 2006). Though I was unable to find any studies that show the relationship between integrated curricula and college readiness or success, there is ample research available documenting the positive impacts of CTE on college and career

readiness. Dare (2006) found that CTE-focused college transition initiatives that target high school students who do not fit a traditional college track benefit students' career readiness. She says, "[p]rograms and initiatives that blend CTE with rigorous academic coursework are providing students with increasingly advanced sets of pre-college learning experiences" (p. 78). Southerland et al., (2005) found that career awareness programs focused on specific transitions to postsecondary help students to develop career awareness. Relatedly, DeFeo (2015) found that students who participate in CTE-integrated high schools have more career awareness than their comprehensive high school counterparts. Though the data are limited on the impact of integrated curriculum at the classroom level, the findings for CTE suggest opportunity.

Teacher Benefits

Students are not the only ones who benefit from curriculum integration— the literature also documents significant benefits for the teachers who participate in this process. These include increased collaboration, development of pedagogical knowledge and instructional practices, development of content knowledge, and more active participation in the curriculum development process. Moreover, it has a social benefit: teachers say that they like doing it (Tews, 2011; Turnipseed, 2008), and they are able to develop better relationships with students (Gentry et al., 2007; McNeir, 1994) and with one another (McNeir, 1994). Zirkle (2004) notes that integration establishes productive relationships between academic and CTE disciplines by helping CTE teachers appreciate the considerable amount of academic knowledge and skills embedded in their technical content, while equipping academic teachers with real world problem-based instructional strategies.

Castellano, Stringfield, and Stone (2003) note that there is a general lack of collaboration between CTE and academic teachers; many academic teachers do not even know their CTE

colleagues or the content available to students in the CTE fields. McNeir (1994) found that as teachers collaborate to develop integrated curriculum, they engage in discussion and classroom observation, shared planning, and exchange of information. Edling and Loring (1996) also noted the value of integration for increasing cross-disciplinary teacher collaboration.

Additionally, as teachers collaborate to develop integrated curriculum, they develop professionally, learning new instructional methods and pedagogical approaches. Castellano et al. (2003) demonstrate that collaborating to integrate curricula facilitates teachers' professional growth. This allows them to become more innovative and actively engaged as they work through the curriculum design process (Castellano, Stringfield & Stone, 2001; Edling & Loring, 1996). McNeir (1994) demonstrated that this is achieved by actively working with other teachers; progressing pedagogy by sharing instructional methods, developing correlated instructional strategies, and discussing students in common.

Beyond just developing instructional strategies, the literature shows that teachers develop deeper and interdisciplinary content knowledge as they work together to integrate curriculum. McNeir (1994) demonstrates that collaboration allows for teachers to learn about courses and content, including better addressing multiple intelligences and learning styles. The benefits identified point to two opportunities: more research is needed about curriculum integration, and teachers also need a means to engage in this process.

A Call to Action

Preliminary studies of integration document positive benefits, and there are a few encouraging examples of school-wide integration that document laudable innovation and successes (see McNeir, 1994). Because there is a lack of research and information on this, it is truly difficult to know the possibilities inherent for teacher benefit, and the potential is yet to be

fully demonstrated in the literature. There may be more benefits than the ones named here.

However in many comprehensive high schools, CTE and academic departments remain bifurcated (Turnipseed, 2008). Even when teachers are trained and encouraged to engage in cross-disciplinary integration, only 45% of teachers who receive training actually implement it (US Department of Education, 2000). Teachers who wish to design integrated units lack resources and models to do this work. There is some research suggesting appropriate methods for teachers who wish to integrate certain academic skills, such as literacy, into the CTE courses (see Pearson et. al, 2010; for other notable examples, see Daniels & Zemelman, 2004), but these examples are unidirectional and do not bring CTE into the academic classroom¹. I personally found these opportunities to be both rewarding and effective, and thus sought to create a resource that would give teachers a starting point for this collaboration, and facilitate more grassroots curriculum integration.

¹ The integration of academic skills into the CTE classroom is encouraging, but when CTE content is not in turn incorporated into the academic classroom, this tacitly reinforces the subordinate position of CTE, rather than elevating and recognizing it as an equal partner in the secondary process.

Chapter Three Method

The Project Created

Designing an integrated CTE and academic curriculum was a natural evolution in my teaching career. In my second year of teaching social studies/history, I created a lesson plan and learning activity that involved having my students in World History write a resume to apply for the position of the next Pharaoh of Ancient Egypt. I explained to my students that, of course, Pharaohs did not apply for this appointment; rather they were born into it. Rather, the goal for this lesson was to introduce my students to professional writing as they explored historical content. The learning activity required students to think about employability skills and their personal qualities, and how to document them formally in a resume format. The work section of the resume required each student to research historical events and explain how these events could make him or her a great leader. It was an innovative learning activity that integrated technical writing and career readiness with the historical content. The end of the integrated learning activity was for me to pick the next Pharaoh using a criteria that assessed the resume format and technical writing with historical content. My learning activity integrated curricula, covered several standards, and demonstrated the learning potential that blending CTE and academic curricula can have on the profession of education.

At this time, I was in a traditional high school and young in my career; I was not aware of the developing movement of integrating curriculum coming out of the Carl D. Perkins Vocational and Career and Technical Acts in 1990, 1998, and 2006. However this lesson and learning activity were a huge success and happened to be an example of integrating CTE and academic curricula before I even knew what integration was. Building on that inertia, that I

started to create more learning activities that integrated history with career cluster or CTE content. Integrating CTE, student interest, and other content into history became such a success that I found myself developing more lessons and units to achieve this goal.

Each time I implemented an integrated lesson in my history courses, I saw excellent student engagement and an opportunity for students and the teacher to explore content applicable in various careers and college. Summative assessments demonstrated an increase in application and mastery of concepts. Instead of history being boring or just made up of dead people, my students were starting to see how history related to their future plans. I worked hard to make historical content relevant to student interests, other academic areas, and career interests. Making curriculum relevant is a main theme in CTE, and an important concept to student engagement, which transitions into student achievement.

Quality teachers who are at the top of the profession seek innovative ways to teach and deliver instruction. Quality teachers tend to be very innovative, which stems from building on proven models that have worked in empirical studies and are recommended as best practices. These teachers are also very reflective before, during, and after a lesson. They evaluate the successes of each lesson and learning activity on student learning. I always asked for student feedback during history classes and lessons, but I was especially interested in the students' feedback during my integrated learning activities. Students described them as fun, useful, and creative. In hindsight, I wish I had collected more data as action research, but as a new teacher experiencing student success, I was content to work on this integrated method. In the first three years of teaching and learning, the profession seems only as large as your classroom, school, and perhaps the district.

I was later hired at the Mat-Su Career and Technical High School (CTHS) and also entered a graduate degree program, at which time I tapped into the larger educational universe. The Mat-Su Career and Technical High School (CTHS) is a CTE high school in the Matanuska-Susitna Borough School District located in Wasilla, Alaska, that prides itself as a Career Academy Model CTE School. This high school is organized such that half of the school supports five career clusters of Health/Fitness, Construction, Engineering, Business/Tourism/Culinary Arts, and Technology. The other half facilitates the required academics disciplines (math, science, language arts, and social studies) that have different credit requirements based on school board policy for high school graduation. The idea for CTHS as a CTE school and program was fashioned from the Career Academy CTE model.

At CTHS, our entire staff started a professional development effort focused on integrating more curricula between our CTE course offerings and our academic courses. Becoming part of the CTE world in this school setting allowed me to flourish, and I worked with teachers in other content areas to produce both integrated lessons and learning activities. I followed the district social studies curriculum, but I had autonomy to integrate and track the students' career cluster content through my history courses. I became clued in to integrating curricula to get my students thinking about, experiencing, and exposed to careers. Integration came together for me as a teacher because I had the opportunity to experiment and help my students explore their career interests through my history courses.

I continued to expand integrating CTE and academic curricula at CTHS, and later applied it to the newly developed CTE program at Hoonah City Schools when I was hired as a principal and CTE Director in 2010. The Superintendent and School Board were seeking to create and

implement a new CTE program. One of the main reasons I was hired at Hoonah was due to my extensive knowledge of CTE. The integration of CTE and academic curricula was an essential foundation in building our CTE program.

I worked with staff at Hoonah to further refine our integrated CTE curriculum and CTE programs for a round-table presentation for the fall 2010 Alaska Association of Career and Technical Education (ACTE) Conference that highlighted Hoonah's CTE philosophy of blending curriculum (Gullett, 2010). My round-table presentations on integration were well received by my Alaskan colleagues. The conference experience reengaged my belief that integration could be a framework for success for students and teachers. I envision that teachers would want more information on this topic so they could facilitate the learning process for our students, and that a well-developed model that could be implemented in any school or culture would be the next step for this project.

I created this project because this process can impact student learning, further develop effective curriculum, and assist teachers to grow their instructional practices. Breaking down the research on integrating the CTE and academic curricula is an innovative and creative process that could be likened to an artist creating a masterpiece. Teachers blend content and instructional methods in their own craft. My project was inspired by my own experience. I wanted to address a gap in the available tools for teachers and to create something new and useful. My project focuses on collaboration, and is composed of three parts: advancing the literature, creating an integrated guidebook for teachers, and developing an accompanying website to reach a wider audience.

Answering the Need for a Process

After identifying a need, I envisioned a how-to guidebook that could assist teachers in

creating effective curriculum and further strengthen instructional practices. Although the research supports integration, there is no guide or manual that helps teachers implement these research findings. The challenge for this is that teachers may not read empirical studies, and it would be more useful to them if someone could translate those recommendations into actionable curriculum implementations (Panda & Gupta, 2014). Filling in this gap for teachers became the focus of my project.

The literature indicates that many CTE programs are using different styles or systems of integration. In some cases the process was very clear, and in other examples it was vague. Most of the literature on integration comes from CTE-specific schools and programs. A clear and simple guidebook that explains, illustrates, and models integration is needed to provide a basic foundation for teachers to develop effective curriculum and to meet the Carl D. Perkins legislative directive.

The Project

I was implementing integration in my own classes, but as a graduate student in both MSCTE and Educational Leadership programs, I was also curating resources. Small deposits of literature on integration were made in my scholarship bank between 2009 and 2012. In the latter part of 2012 and 2013, however, I widened the search on integration. I familiarized myself with the literature by prioritizing most of my research on integration of CTE and academic curricula, but I soon found that I needed to expand into the literature on integration throughout education as well. As I performed a detailed analysis of the research, I discovered patterns and themes, which became the organizing topics of the literature review. The research and literature contain a wealth of information and data on integration, but there was no how-to manual for teachers.

The curriculum guide itself was the answer to the question *How do I address a major*

need for integration? The next question became *How do I go about crafting a guidebook and website for teachers that will solve this need?* Creating a practical method and process for teachers to develop effective integrated curriculum and to advance instructional practices was key to my CTE project. The final product is an integrated curriculum guidebook with an accompanying website that houses the guide and provides useful templates to further support the proposed method.

Guidebook development. After completing the literature review, the next step was to develop an integrated CTE and academic curriculum guidebook. To create the guidebook, I first researched examples for how-to manuals designed for teachers and a variety of other audiences. I examined the various ways that these documents are organized, and what made them user-friendly. My objective was to identify some best practices for designing meaningful guidebooks. Ultimately, I identified key components and a structure that would be best for the objectives that I wanted to accomplish. I fine-tuned the process by keeping the guidebook short, providing diagrams and charts, and explaining integrated curriculum with various handouts for designing and implementation in the classroom. Authoring several drafts, examining many examples, and gaining feedback from colleagues produced a well-constructed guidebook ready for publication (see Appendix A).

First, I introduced the concept of integration. Next, I needed to develop the process for teachers, and I wanted to make it useful and intuitive. I drew from my experience doing it in my own classroom, but my process had been largely intuitive and experimental. Now, equipped with both a literature review and guidebook examples, I was able to put together worksheets for teachers that would replicate the components of my process. Having been both a CTE director and an academic teacher, I put myself in the shoes of teachers on both sides, and developed

worksheets that would be familiar to them in the context of developing curriculum. These worksheets are intended to guide the collaboration between a CTE and academic teacher.

With a structure for collaboration lined out, I then organized the guidebook so the process would be contextualized for teachers. In other words, I had to convince teachers that they would want to do this, and provide examples of what successful integration would look like. The process of developing the guidebook was one of explaining and defining curriculum integration, showing teachers how it could be simple, and boiling down the literature review to support my assertions. I provided schematics and information that would give teachers the tools and background information they would need to engage in curriculum development.

Website development. After developing the guidebook, I needed to devise a way to get it into the hands of the end-users – academic and CTE teachers. Also because the worksheets and content are preliminary, I wanted to create a way to keep updating content, rather than disseminating a static print guide. It goes without saying that digital content is the best way to reach a wide audience, especially an audience that is more interested in implementation and tools than empirical articles, and so I developed a complimentary website.

I developed Google site (<https://sites.google.com/a/alaska.edu/curriculum-project-cte-and-academic-curriculum-integration/>) to house the content. The website has four key components:

1. Introductory content to introduce teachers to the concept of integration
2. Downloadable documents, which include the guidebook itself and additional resources that I have created and curated in my experience with integration over time
3. A forum for teachers to communicate with one another and share their experiences as they engage in integration activities

4. A mechanism to teachers to provide specific feedback to me about the guide and its applications

The website was just recently launched at the time of this writing, and I am hopeful that it will serve as a professional development tool for the teachers who use it, as well as for me. It is intended to create a way for me to explore how this is a viable resource for achieving the promises of integration.

Chapter Four Discussion

Goals Revisited

The goals of my project were to develop a method that could facilitate effective instructional methods and to advocate for a greater amount of integration as mandated by legislation in the Carl D. Perkins Career and Technical Education Acts. A secondary goal is to create a method that allows teachers to have more opportunities in the curriculum development process. In order to meet this goal, I created a guidebook and website intended to help teachers work together to develop integrated CTE and academic units, lessons, and learning activities. When teachers engage in integration, they like it (Tews, 2011; Turnipseed, 2008), but most are unaware of this approach, and lack administrative support to implement it (Brewer, 2004; Helfman, 2013). More than 20 years ago, McNeir (1994) identified the need to integrate for applied learning, and advocated for revising curriculum in an integrated way. I hope this project will support that objective.

Project Strengths

Beyond my personal reflections, to assess the strengths of the project, I shared it with teacher colleagues in academic and CTE disciplines, and compared the project deliverables against the calls to action identified in the literature. I shared the project with a CTE principal, with five teachers (three CTE and two academic), and solicited their feedback. Their comments were generally positive, and affirmed my self-evaluations. Identified strengths are that the project addresses a noted gap in the literature, is a useable guide, is well-structured and simple, demystifies the process and quells fears, serves as an advocacy tool, and facilitates collaboration.

Addresses a gap in the literature. My CTE project addresses three major needs in the

CTE literature, which were revealed by my research on the topic of integration. The first need is to increase awareness of integrated CTE and academic curriculum; it has been noted that few teachers are aware of this opportunity, and need professional development in this area (Castellano et al., 2003; Tews, 2011, Turnipseed, 2008). Next, as this is mandated by federal legislation the project helps individual teachers to respond to this requisite. Thirdly, this project addressed a noted gap: teacher resources in a how-to format that would help them to develop these integrated lesson plans. The literature is rife with descriptive examples and case studies of effective projects (see Brewer, 2004; Helfman, 2013; Tews, 2011), but implementation resources are lacking.

Useable guide. The handbook is created from a grassroots level, which came from my own experience of exploration and taking risks to develop a new method. The handbook also utilizes the strengths from other guidebooks examined for the project, and draws from the key examples provided in the literature and trade publications that describe how integration has been implemented in a few sites. Because it draws from these examples, the guidebook is accessible to a potential large audience through the Internet, and downloadable from the website I created. My own assessment of the project and the feedback I received from my peers noted that the handouts and the guidebook are useful, self-directed tools that allow teachers to use this approach.

Well-structured and simple. Feedback I received from my colleagues categorized the guide as short, to the point, and well-written. The guidebook is logically structured, allowing teachers to quickly access it and be able to understand the approach. The guidebook makes the process clear, simple, and implementable.

Demystifies process and quells fears. The other goal of writing a teacher friendly-guidebook on integration is to quell fears of what curriculum integration is, what it looks like,

and how it works. My colleagues indicated that it is an excellent guidebook for first-time, unaware users, and teachers still struggling with integration, as many are (Turnipseed, 2008). It can be overwhelming to try something new and innovative, and my colleagues also liked how I made a complex aspect of curriculum integration into a simple and not overwhelming method that could be achieved naturally in collaboration and professional development. The guidebook is focused and makes the esoteric subject simple and easy to accomplish.

Advocacy tool to increase awareness. The guidebook and website creates awareness of integration advocates for CTE. The field needs more advocacy for the progression of programs, awareness, and cross-disciplinary growth. This helps to narrow the noted gap between academic and CTE disciplines that has existed since the Smith-Hughes Act of 1917 (see Castellano et al., 2003; Kuo, 2010). The website creates an interactive forum for teachers to discuss integration and implementation with one another, and especially reaches the wider audience of academic teachers who are not aware of integration.

Facilitates collaboration. My approach also provides away for CTE teachers and academic educators to engage in collaborative and professional discourse and to identify commonalities and overlaps to add rigor and relevance to their curricula. McNeir (1994) and Turnispeed (2008) discovered that many academic teachers do not know much about CTE programs in their buildings. The guidebook and website can assist teachers in learning about one another's programs and curricula, and start the discussion showing how much content truly crosses disciplines.

Limitations and Assumptions

The limitations and assumptions I made throughout the process are addressed in this section. I will explain how these are connected into specific concerns, and how they may be

addressed and examined. With time and feedback on the website, I will identify more limitations, and modify the project accordingly. For the moment, I would like to address the known limitations and assumptions that I have been able to identify both in the literature and in my process.

Limited examples in the literature. There are very few articles on integration, which made research aspect of the project challenging. I was surprised that so few articles in CTE research spoke to the topic of integration. I was also shocked at how wide-ranging the research articles were on the topic of integration. For example, one examined integration at two high schools on the Navajo Reservation (Helfman, 2013), and another examined CTE curricula blending in a gifted and talented program (Gentry et al., 2007). Even with a small number of articles, I was able to find patterns and themes. This limitation meant, however, that I had to expand the search into a history of integration beyond the CTE context.

Untested framework. Being untested is another important limitation to my project. I believe that many teachers like myself think about and want to integrate curriculum from different content disciplines, but I had to develop a method from my experiences (outlined in Chapter 3), and the available literature. Because my curriculum guide offers a model where none existed, I was truly braving a new frontier. Having no specific example of an integration guidebook allowed me the opportunity to create one. However, at present, the guide is extremely preliminary, and it is untested. I started to develop the guide in rural Alaska as a principal teacher, and I did not have enough staff to engage in this process. Since then and at the time of this writing, I have moved to a larger more comprehensive high school, and I am beginning to test the model in academic seminar programs (integrating English and history). With time, I hope to implement the process with CTE programs in my high school and the handful of CTE high

schools in the state of Alaska.

Elementary guide. Though my colleagues were complimentary that the guidebook was a useful tool for teachers unfamiliar with integration, it may be too elementary for veteran teachers who are provide more learning activity examples, and perhaps multimedia resources (such as tutorial videos) on the website to engage a wider audience.

Audience interest. An assumption in the creation of this project was about the potential audience and its interest in my product. Based on my own need for a guidebook when I did integration in my classroom, and limited literature about teachers' interest (see Turnipseed, 2008), I assume that there is a demand by teachers. I assume that at least CTE teachers and principals know what integration is, especially being federal law through the Carl D. Perkins Acts, and I assumed a demand for an integrated curriculum guidebook from teachers seeking to improve their craft. The limitation in this assumption is that I do not know the level of demand for my CTE project in the teaching community. Another important missing element is student input and feedback.

Assumption of teacher autonomy and administrator support. A final limitation is the assumption that teachers have the autonomy to engage in these processes. I assume that teachers have the autonomy to be creative with the curriculum, but in fact, this may depend on their circumstances or administrators' involvement or interests. Some districts and schools are quite specific in the curriculum that teachers must follow. In other cases teachers have autonomy to experiment. A lack of teacher autonomy, which possibly hinders professional growth, is a limitation to my project. I am also assuming that administrators are willing to ask teachers to work in collaboration for the purpose of furthering their professional development and improving teaching practices.

Considerations for Teachers Who Implement the Project

One pitfall that can occur in education is that we are directed to carry out a program or implement a new idea without support, or we try something new and it fails. I can think of several examples of teachers attempting something new and having it backfire. Unfortunately, rather than reviewing what did not work and adjusting their process for the next time, they simply abandoned their ideas and returned to their comfort zone.

Stick with it. I encourage teachers to employ the method at least six times. When implementing a new method, teachers need time to develop instructional practices and to collect assessment data that will help you to refine your praxis. To only use it once or twice will not provide the data and assessment to evaluate integration, and does not give enough information for effective decision-making and planning (Boudett, City, & Murnane, 2005; Boulmetis & Dutwin, 2005). The more one practices and sticks with the integration, the greater opportunity to refine the program.

Get support in creating time. Many external factors can affect the implementation of a project such as a new curriculum program and instructional practices. One example of an external factor is lack of support from other teachers or educational leadership. Another factor is available time in the school day and school year, especially in consideration of the various requirements from federal, state, and local policies. Teachers will need support from their principals to develop integrated curricula. Due to the amount of work involved in the profession of education, most teachers spend a lot of extra time with grading, creating learning activities, and doing professional development on their own time. In such an environment, administrator support is essential. I suggest:

1. Approach administration with your ideas and communicate your intentions around

integration and action research.

2. Identify integration as one of your goals for evaluation.
3. Ask administrators for feedback on your process.
4. Ask for professional development days to develop integration.
5. Discuss teacher and student benefits of integration.

Get support. The website also provides an online forum for teachers to seek advice in how to work the model within their school culture. Further tools are available on the website, which allows me to assist teachers in a variety of ways. A huge benefit is that I have been a teacher, principal, and CTE director. This experience and knowledge allows me to assist teachers and provide information about how to start the conversation, collaborate, and work the method into their CTE or academic programs.

Looking Forward

I hope that the scholarly community will use my current work and test it under the microscope. I am excited to receive feedback from researchers because their critiques of my project will uncover the possible areas of my work that warrant future study. I also recommend that researchers in CTE continue to examine this topic and expand on the literature because, to date, there is little research on the topic.

Chapter Five Conclusion

Integration and Educational Philosophy

Teachers entering the profession and current educators are expected to be able to explain their philosophy of education: their views on student learning, engagement, instruction, assessment, and how they teach the curriculum. Each educator entering the field develops their educational philosophy differently. This section will explain my personal educational philosophy, how integration fits within it, and how integration fits in the other educational philosophies. Though my project focuses on a curriculum development method that largely incorporates constructivist theories, it is important to remember that teachers still have to wrap these into their educational philosophies. When investigating educational philosophies, the poignant question is: *where does integration as a teaching (instructional) method fit within one's educational philosophy?*

My educational philosophy is existentialism. Broadly, integration as a framework fits best in contextual learning theory, which falls under experimentalism and existentialism. Integration that creates contextual and experience-based learning opportunities that provide rigor and relevance fits within this philosophy. Teachers provide content to assist students in examining other views with the goal of clarifying their own views and developing character, individuality, and discovering career interests (Cohen, 1999). This aligns well with recent CTE initiatives around career pathways and career exploration to help individuals discover their interests and aptitudes and to specialize around a career choice, leaving secondary education with more than a diploma, but a sense of purpose. My approach to instruction, curricula, and learning were opportunities for students to explore careers and discover their human nature. I am

convinced that my development of and interest in this project is derived from my educational philosophy of existentialism.

An interesting consideration for this discussion is that many CTE teachers were once professionals who have transitioned to the classroom without going through a teacher program (Gordon, 2008). Scott and Sarkees-Wircenski (2008) describe two kinds of CTE teachers: the first come from college of education programs and the second are individuals from business and industry who can obtain teacher certification to teach in CTE schools or programs. The Carl D. Perkins legislation encouraged schools to allow industry professionals to transition into schools to strengthen CTE programs, rather than hiring academic teachers with hobby- or personal-interest-level skills to teach CTE content (Sarkees-Wircenski, 2008). The challenge is that many CTE teachers who have come to teaching through alternate routes may not have developed educational philosophies. This opportunity to talk with and work with academic teachers may afford them the opportunity to gain a greater understanding of the field, as well as to develop their philosophies through discussion. I know within my own experiences in teaching that integrating CTE with history was natural, and the process afforded me the opportunity to grow as a teacher, and to further develop and refine a method for integration.

Next Steps

The next steps with my project come in phases. I am already in the process of doing some, which can be accomplished in the next couple of years. Some of the next steps are in the range of four to five years in the making. They fall into four categories: personal development, website development, extending and expanding the guidebook, and promoting the method with ongoing research.

Personal development. First, in my own classroom, I intend to continue the integration that I have implemented in my seminar class that includes CTE, but the main focus is blending English and history curricula. Additionally, I plan to integrate CTE and academic content in my non-seminar classes, and create an assessment tool to collect the data. My work has already gained some attention. The seminar program at my school site is asking me to examine our curriculum and integrate English and history curricula for all grade levels in the entire department. A next step would be to ask administration at my current site if we can implement integration with our CTE programs and corresponding disciplines.

Website development. Another important step includes ongoing website development and maintenance. First, I need to implement a way to track visits to the website, and to track downloads. Also, I plan to use the site to communicate with teachers who use my integrated guidebook and website, and solicit their feedback. I want to create a forum for teachers to communicate with me as well as with one another, and to share their own materials and stories with one another. I also have an opportunity to develop and add more content, including creating training videos on integration, uploading more examples from my past experiences, and new materials that I develop. Finally, I intend to use the blog and communication tools to collaborate with teachers and provide professional development.

Extend and expand guidebook. I would like to create an addition to the guidebook that goes beyond the introductory model for teachers more familiar with the process and who already have experienced blending curriculum. The will include creating handouts that fit a wider variety of teacher needs. As I refine the guidebook, I will create a framework for developing it into a larger book or professional development program.

Promote the method and ongoing research. I am especially interested in sharing the method and getting feedback from teachers and educational leaders at the three main CTE high schools in Alaska. A first step would be to present the integrated model at the 2016 Alaska fall CTE conference. Concomitantly, I plan to develop assessments and ways to test the model for future research, and to include student input and feedback in these analyses, especially pertaining to student engagement, learning, and academic achievement; teacher professional development; and teacher engagement in the curriculum design process. This will include ongoing literature review, as well as data collection and analysis. The final goal of my project is to publish a book on the subject of integrated curriculum as an effective curriculum and instructional framework. I wish to follow in the footsteps of authors who have created frameworks based on data, research, and best practices.

Forward Thinking

Students learn in different ways. Not all students are on a college track, but they all need to develop skills. Most careers require specific training that not all high schools can provide. In many cases professions are seeking workers who have special training from a CTE high school, specialized college certificates, a degree, or degree from a postsecondary extension program that is similar to college.

With Carl D. Perkins and its emphasis on integration, education has shifted its thinking from CTE for some students to CTE for all. CTE is an opportunity for students to explore their interests and aptitudes, and should not limit students' choices based on their family or socioeconomic background. I would like to see different siblings within a single family to pursue different tracks not based on their family background, but rather on what they enjoy doing and

would find fulfilling. Integration provides both meaningful exposure and relevant learning experiences.

A prime example would come from my own family. My father was a science and math teacher who moved up to become a principal. He would later leave education to become lawyer. My father was part of three different career pathways: STEM; education and training; and law, public safety, corrections and security. My uncle (my dad's brother), was a career marine for twenty years, and he used the military funding to pick up six degrees, mostly in the humanities. I started my career as a history teacher, and later became a principal and CTE Director. Though my family has a very academic path, my brother took a different track. He is the perfect example of being a good student but not seeking the traditional college track. He excelled in the shop and welding courses offered at our high school, and in the postsecondary entered into a CTE mechanics program at a community college in Oregon. The recession proved that his prior certificate may not be the best route, and he found himself attending Oregon State University (a Merrill Act CTE College, see Gordon, 2008) for mechanical engineering. I have since wondered how a CTE high school would have benefitted him better in the postsecondary to achieve his goals in a more efficient way.

Everyone in my family, those who pursued academic tracks, and those who pursued CTE, find themselves tied to CTE. This is a quintessential example of integration, applied to real life. I entered the world of CTE through my education program, but I am a firm believer that CTE is a huge benefit to many of our students in Alaska and around the nation.

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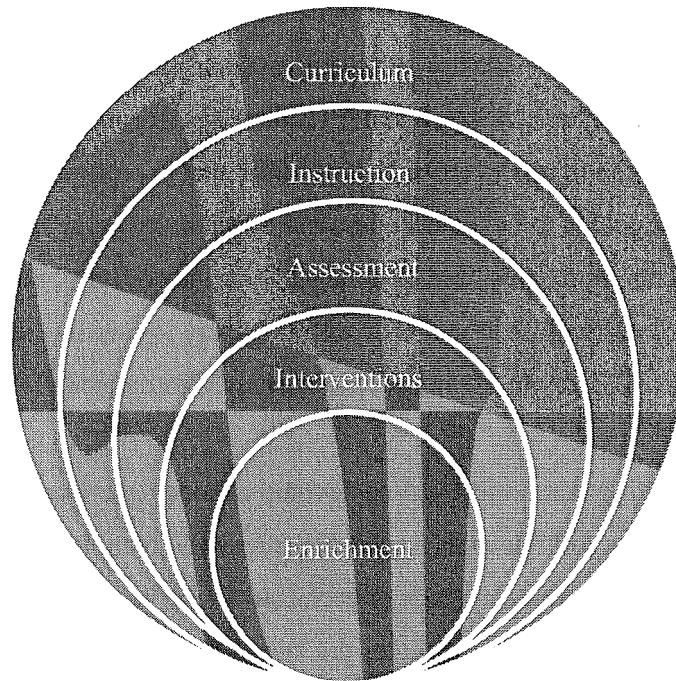
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Appendix A: Integrated CTE and Academic Curriculum Guidebook

*The Integration of Career and Technical Education (CTE) and Academic
Curriculum Implementation Guidebook for Teachers*

By
Michael S. Gullett



A CTE PROJECT
University of Alaska Anchorage

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Introduction

Curriculum has become a hot topic of discussion on several levels. *What we should teach?* and *How we should teach it?* are two major topics of debate in the struggling US education system. Curriculum development includes decisions about appropriate content in a specific course, and curriculum guides outline the concepts that students should learn. An important aspect is instruction, which considers how content is delivered so that students not only understand the material, but also are able to demonstrate mastery.

In my educational career, I have worn many hats and served in a variety of positions, including social studies teacher, principal, and CTE director. Regardless of the position, I have always held two goals. The first is to create a curriculum that is engaging, effective, and innovative. My second goal is to be the best possible educator by being innovative in teaching to best prepare my students for a career and/or college. Over the course of my career, it has become clear that an integrated curriculum model is an excellent way to improve student learning and instructional strategies. The key to my innovative success is integrated CTE and academic curriculum.

My goal in creating this project was to develop a model of effective curriculum integration that is rigorous and relevant, combining career and technical education (CTE) and academic content. The legislative language of each Carl D. Perkins Vocational and Career and Technical Education Act since 1990 mandates the integration of CTE and academic curricula within CTE programs (Gordon, 2008). The specific process of integrating curriculum is not new and has been demonstrated in the Dewey School, Lincoln School, Houston City School, and Bank Street Workshop (Merickel, 1998).

Superintendent Michael Johnson of Copper River School District has developed five essential themes from Ewy's (2009) *Stakeholder-Driven Strategic Planning in Education*. During an educational leadership class, I was introduced to Johnson's five themes. The work from the class became the foundation of my work. These five essential themes can drive progressive educational work in schools. These five themes are the foundation and the organizational tool I used for this project of integrated CTE and the academic curriculum guidebook. These five themes begin with the word *effective* and are:

- Curriculum
- Instruction
- Assessment
- Intervention
- Enrichment

The first two themes are specific to developing curriculum that works and to further improving the instructional practices of teachers. My integrated curriculum framework addresses the first two of these five themes: creating effective curriculum and progressing to a collaborative and effective instructional method. In the next phase of this project, I will expand the model to address assessment, enrichment, and intervention.

This guidebook is designed to be used by two teachers who wish to improve student learning, improve their instructional practice through teamwork and professional development, and integrate CTE and academic curricula. The integrated guidebook provides a detailed step-by-step process that includes:

1. Identifying curriculum to be integrated
2. Collaborating with a partner teacher in a different subject or discipline area
3. Creating integrated unit plans, learning activities, and instruction

The various templates and handouts will assist the two teacher team in implementing the entire process; additionally, please check my website for more useful materials on integrating curriculum.

The Integration of CTE and Academic Curriculum Website:

<https://sites.google.com/a/alaska.edu/curriculum-project-cte-and-academic-curriculum-integration/>

Section One: Curriculum and Integration

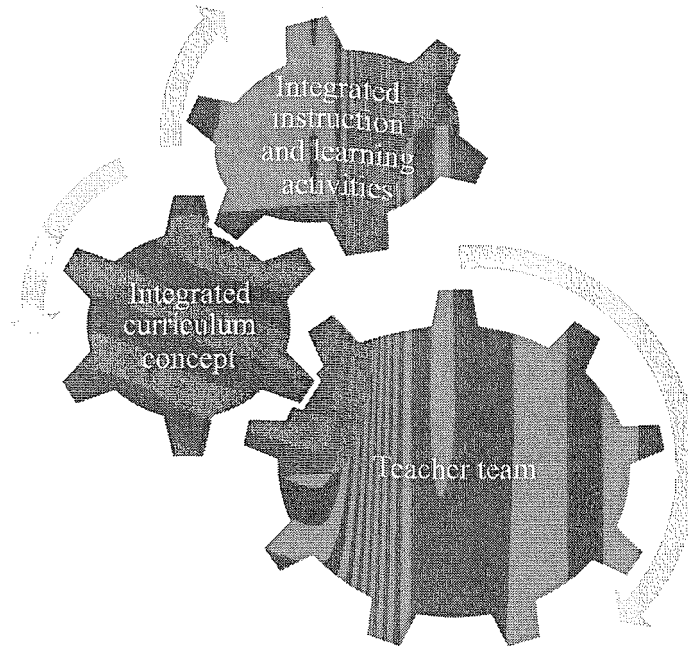
What is Effective Curriculum?

Content refers to the specific information students ought to have learned upon completion of a course (Seif, 2014). Curriculum provides a specific framework for course content, topics, and concepts that are taught to students through a series of learning activities. Curriculum in education and as scholarly academic pursuit is complex. At times politics influences education through movements to create standards, which is shown by the recent movement to align curriculum to the Common Core Standards. According to its website, the Common Core is designed to prepare a student with the academic skills necessary for success in college, career, and life (www.corestandards.org). A key element is that the Common Core *are* standards that can be part of the curriculum and assist in the assessment of student performance.

The art of teaching is a process that starts from the creation of effective curriculum, meaning a clear plan for identifying what students need to know, and how to progress to achieve these outcomes. I use the word “effective” because it describes the objective: an advanced curriculum geared toward student success through quality, engaging, and innovative instruction. Effective curriculum at the secondary level and in CTE must address relevant and rigorous content and skills that students need for career and college. This achieves both academic and workforce development objectives, as students develop not just an understanding of technical and academic concepts, but also skills of higher level thinking and application.

One approach to achieving this is through integration of CTE concepts. This process uses team instruction for creating units, learning activities, and overlapping projects. Integrating curriculum not only benefits students, but also facilitates teacher professional development – when teachers work together, they learn from one another and improve their own practices. The creation of integrated curriculum is a system, and each part has a specific outcome that directly impacts and improves the results of the entire unit. Figure 1 conceptualizes this process as parts of a machine.

Figure 1. Curriculum



In a machine, each component is integrated with other parts and needs to work independently as well as together in order for the entire device to function at its highest potential. The integrated curriculum team serves as a major component in connection with developing curriculum concepts and instruction.

Why Does Integrated Curriculum Work?

Integrated curriculum works because it provides extra learning opportunities for students to explore, experience, and apply essential concepts. Two teachers co-teach a unit at the same time in their different courses, creating crossover of instruction and learning activities (Culatta, 2013). When teachers are committed to working effectively together to develop learning activities, the curriculum carried out as instruction and learning activities takes on a new level for student learning and achievement.

I have identified five reasons why teachers should integrate curricula to progress student learning, collaboration, instructional abilities, and the key application of specific skills needed in the postsecondary:

1. Integrated curriculum provides more **time, exposure, and experiences** for the student to grasp the concept.

2. Students learning within an integrated curriculum model have the opportunity to experience learning in **their own learning style**.
3. Integrated curriculum instruction and learning activities provide more opportunities for the student to demonstrate **application of skills** in differentiated ways.
4. This integrated curriculum creates **rigorous and relevant** learning experiences that meet and achieve standards.
5. Integration for teachers is a professional development opportunity that requires collaboration to further develop **instructional abilities and methods to student learning**.

The next two sections of this guide will walk the teacher team through the steps of creating an integrated curriculum unit.

Section Two: How Does Integration Work?

Integration starts with two teachers working together to examine curricula. In this process, educators can discover overlapping concepts and key academic skills for students to know and demonstrate. Certain courses have natural overlaps, which will make it easier to create integrated units. An example of an overlapping concept is angles, which is found in CTE disciplines of construction and engineering, but are also in the math and science disciplines; more examples are presented in Table 1. The four steps listed below illustrate the process of creating integrated units. The process guides the teacher team from this brainstorming session through the process of constructing an integrated CTE and academic unit.

Integrated Curriculum Steps:

1. Teacher Team: Find and Unpack Overlapping Concepts to Integrate
2. Integrated Planning Process: Brainstorm Integrated Activities
3. Creating Effective Curriculum: Create Integrated Curriculum Unit Plan and Learning Activities
4. Implementation: Facilitate the Integrated Unit Plan and Learning Activities

These steps will be broken down in greater detail in the next section of the guidebook. The accompanying website and template handouts in the appendix will guide teacher teams through these steps. The next installment of this project will provide more information on assessment/evaluation, curriculum enrichment, and curriculum interventions to progress the student acquiring knowledge. Table 1 provides a reference guide on possible integrated concepts that overlap.

Table 1. Examples of CTE Curriculum Integration for Brainstorming

CTE Course	CTE Concepts	Math	Science	English/LA	History/ Social Studies
Construction	Home Foundations	Foundation concrete ratios	Building on the tundra	Writing a proposal	History of building on the tundra
Engineering	Designing a plane engine	Math formulas for a circle	Principles of flight, power, lift	Professional and technical writing, structures of writing	History of flight
Business	Risk probability	Probability	Environmental risks	Excel worksheet and professional writing	History of natural disasters
Tourism	Managing an Alaskan Tourism Business	Formulas for calculating profits	Geography, ecosystems, and managing natural resources	Professional writing	History of tourism in the state and Anchorage
Health fitness	Medical Math	Ratios, multiplication, addition	Chemical reactions	Writing, summarizing, explaining, and charting data	History of prescription drugs
Culinary arts	Creating a meal with appropriate food portions	Ratios, multiplication, addition	Chemical reaction of foods	Imagery and descriptors	Food and culture
Computer networking technology	Creating a network	Measurement and ratios	Circuit systems, power, work, and energy	Writing power points, explaining in bullet point	History of technology and computers

This table provides examples to assist in thinking of complementary concepts between CTE and academic curricula.

Section Three: The Process

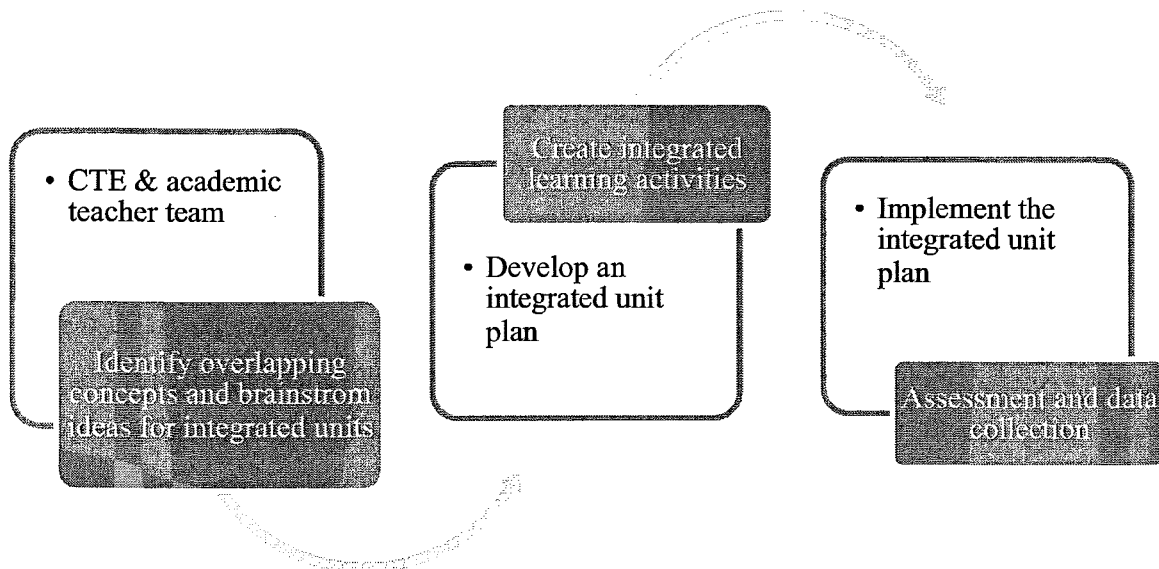
This section will walk the teacher team through the process of integration in four specific steps. These steps assist the teacher team to identify concepts that overlap to construct an integrated unit. I recommend performing integration with another teacher, one from a core academic discipline and the other from a CTE discipline. This collaboration enhances teacher professional growth, and especially develops instruction to create effective curriculum. Once the teacher team is created, it is important to confirm and communicate with the principal that the team wishes to implement the integrated curriculum model in each class. My website provides extra templates, support, ideas, and methods. The website also has ways to communicate with others, and I created a forum blog page so that I can communicate with educators using my process.

Methods and Process Steps of Integration:

- ✓ Step One - Find and Unpack Overlapping Curriculum to Integrate
- ✓ Step Two - Brainstorm to Develop an Integrated Curriculum Concept Idea
- ✓ Step Three - Create an Integrated Curriculum Unit Plan with Learning Activities
- ✓ Step Four - Implement the Integrated Unit Plan

The integration of curriculum in CTE schools and programs is a valid and documented approach done in different ways, but what I did was create a detailed method not found in current practice. My method and model are untested. I plan to continue to develop unit plans of integration that blend curriculum concepts with CTE and academics. Figure 2 depicts the process of integration visually.

Figure 2. Integrated Curriculum Process



Integration of CTE and academic curricula is a process that moves concepts found in both classes to an interdisciplinary lesson or unit.

Step One-Find and Unpack Overlapping Curriculum to Integrate

The first step of the integrated process is to find a partner. The best teacher team for the process would be one from the CTE disciplines and one from the academic side. Naturally, aligning disciplines from CTE and academics could assist in an easier process, and as an example could be the CTE class of construction and the academic class of math. To make the integrated process successful, teachers must work as a team, schedule time to collaborate, and plan ahead. Once the teacher team has established itself, then the team is ready to begin the work of integration.

The Appendix A-1 template provides a framework that guides the teacher team to find and unpack overlapping concepts in both courses. It is important to explore several overlapping concepts, but the team must determine the one concept that could be integrated. The questions on the A-1 template guide the teacher team to determine the relevant aspects within the classes and how the concept is important. The essential questions on the A-1 handout allow the team to collaborate and determine the instructional *why* and *how* students will show application and mastery of the concept.

The questions on the A-1 handout become more challenging as the team progresses through the process. The goal of this handout is to assist the teacher team to create a high level of rigor. The concepts identified should be essential components of each course and lend themselves to high levels of critical thinking in student learning.

Step Two - Brainstorm to Develop an Integrated Curriculum Concept Idea

The curriculum content map framework in Appendix A-2 is a guide for transitioning the identified concepts from brainstorming to more of a concrete planning process. The A-2 handout provides guiding questions for the teacher team to collaborate and discuss to better understand how the concept is taught in both disciplines. The A-2 handout is focused on providing the teacher team with the essential questions to get very clear on *what* makes the concept rigorous.

This step invites the teacher team to develop innovative ways to integrate instruction and learning activities to teach the concept as a team. Answering the essential question “How should we co-teach the concept?” will help frame the discussion. This process helps to develop innovative instruction and learning activities. The A-2 handout is the essential step that sets the stage for the unit plan and learning activities that the team will create in the next step.

Step Three - Create Integrated Curriculum Unit Plan with Learning Activities

The integrated CTE and academic curriculum unit template is provided in Appendix A-3. The template is divided into several sections to guide the teacher team in creating an integrated unit plan. The A-3 unit-plan handout assists the teacher team with creating integrated instruction and learning activities for students to learn and show application in both courses. This template also includes sections that the teacher team can start to think about: assessment, interventions to learning, and enrichment. These will be further detailed in next installment of this project and on my website.

- A. **Overarching Integrated Curriculum Principles:** The first two sections of the A-3 template are focused on the teacher team discussing and collaborating to frame a unit. The first section is split into the CTE and academic disciplines. It asks the team to show how the integrated concept is applicable in CTE and academic areas. Once determined, the team will see how relevant the concept is to postsecondary

applications in various careers and/or in college. With this section complete, the team can move on to the second part of the first page of A-3 template, which guides the team through essential questions. The answers to the essential questions are the foundation for creating an *effective curriculum* and *integrated curriculum*. These sections are extremely important because the answers to the questions will drive the unit plan, learning activities, and instruction. The last part of this step is titled, *Integrated Curriculum Opportunities for Teaching*. This section assists the team in developing or creating the fundamental ideas necessary for integrated instruction and learning activities.

- B. **Framing Integrated Learning Activities and Methods of Teaching:** The next section of the A-3 template has essential questions to create specific integrated learning activities for students. This is page 2 of the A-3 integrated unit plan handout, and the collaborative work done in this section will outline the learning activities students will experience in both classes. Once the learning activities have been created, the teacher team can better define the learning objectives and instruction that will frame the integrated unit plan.
- C. **Integrated Unit Plan Learning Objectives:** Page 3 of the A-3 integrated unit plan handout provides the teacher team the opportunity to create learning objectives. The *unit plan learning objectives* will help the teacher team think about how students will develop upper-level thinking skills, progressing along Bloom's Taxonomy. The goal of integrated curriculum unit plan is to guide the student from understanding to application and mastery through the learning activities. Writing integrated unit objectives create instruction and learning activities that drive the progression of learning for the student.
- D. **Integrated Unit Plan Methods of Engagement, Instruction, and Detailed Learning Activities:** Now the teacher team is at one of the best parts of creating the integrated unit plan. On page 3, the final section allows the teacher team to show creativity and innovation by coming up with engagement, instruction, and learning activities. This step in the integrated process on the A-3 template is the last step prior to implementation. At this point the teacher team will be collaborating on the details

of the unit plan that will guide the students in their learning of the integrated concept. The A-3 handout on page 3 assists the teacher team to create integrated engagement, instruction, learning activities, assessment, and reflection.

As a team it is essential to collaborate on integrated instruction to achieve effective curriculum, and reaching a high level of student learning requires differentiated, creative, and innovative instructional methods. The instruction is masterfully developed through the integrated process and should progress from learning to application. With a detailed plan, the next step is implementation.

Step Four - Implement the Integrated Unit Plan

The last step of the process is to implement the unit plan in each class. The teacher team should determine a good time in each of their course schedules that would allow for implementation to occur at the same time. The teacher team should continue to collaborate and prepare to implement the unit plan that was created on the A-3 template. As the date approaches, work as a team to finalize the integrated unit plan, instruction, and learning activities. The implementation process is the final step that allows for all the hard work done by the team to assist students in moving from understanding into higher-order abilities. The integrated unit plan allows students to have an increase in curriculum exposure, and differentiated learning activities should meet each student's learning style.

Implementing "To Do List":

- ✓ Communicate with principals and curriculum directors for support.
- ✓ Before, during, and after implementing the integrated process, communicate on the website via the blog.
- ✓ Examine and review the accompanying website for extra ideas, handouts, and methods to assist a smooth implementation, instruction, and further progress students to higher order thinking.
- ✓ The teacher team will need to continuously check in with one another and collaborate on what is working and what is not working and to fix any issues that arise.
- ✓ Continue to document the results in student learning, the process, and instruction.

Table 2. Integrated CTE and Academic Curriculum Steps

Step	Integrated Steps	Appendix Templates	Process Template Purpose
1	Find and Unpack Overlapping Curriculum to Integrate	A-1	Unpacking process template for the teacher team to find a concept that can be integrated. Also, the template guides teachers through questions to demonstrate how the concept can be integrated.
2	Brainstorm to Develop an Integrated Curriculum Concept Idea	A-2	Brainstorming how the concept can be integrated, and what makes it rigorous. Also, the template assists teachers in stating how the concept is relevant.
3	Create an Integrated Curriculum Unit Plan with Learning Activities Includes: 3-A, 3-B, 3-C, and 3-D	A-3	Assist in the creation of an Integrated Unit Plan. It is one template with four sections that guide teachers to create integrated principles, framing teaching of curricula methods, creating objectives, and building engagement as well as instructional methods.
4	Implement the Integrated Unit Plan	Website	This step explains the implementation of the integrated work, but at this stage the teacher can refer to the website for extra ideas, templates, collaboration, and resources to further assist the implementation of the unit and learning activities.

Section Four: Conclusion

The goal of this integrated curriculum guide is to provide a how-to manual for developing enriching and effective curriculum between CTE and academic courses. My goal in developing this guide is to provide an effective model for interdisciplinary collaboration wherein two teachers team up, use their collaborative time to identify content that is present in both classes, and create an integrated unit plan. The combined work of developing and teaching an integrated unit should result in more time for students to be exposed to the concept and accommodate different learning styles. Additionally, it provides the opportunity for teachers to work together and improve instructional practices.

Appendix

A-1. Integrated CTE and Academic Curriculum Handouts for Teacher Team

	CTE course	Academic course	Importance	Mastery
CTE and Academic Concept	What is the content?	What is the content?	Why is the concept essential?	How will the students demonstrate higher order learning?
1.				
2.				
3.				
4.				

A-2: Integrated Curriculum Content Map Framework Template

Concept:				
How is the concept taught in the academic course versus the CTE course?	What makes this concept relevant?	How could we integrate the concept in a unit plan?	What are some instructional practices we can develop to assist in student learning?	How can we create learning activities that and move students into upper-level thinking?

A-3: Collaborative Integrated Unit Plan Template

Integrated Curriculum	
<p>CTE courses the curriculum concept hits and taking part in the unit:</p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>4. _____</p>	<p>Academic courses the curriculum concepts hits and taking part in the unit:</p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>4. _____</p>
Effective Curriculum	
Essential Questions	Team Response
<p>Why is this concept essential for students to know, understand, and demonstrate application/mastery within your class?</p>	<p>Academic course and CTE course</p>
<p>Why is this curriculum relevant to your class and to students preparing for a career or college?</p>	<p>Academic course and CTE course</p>
<p>What makes this concept an essential aspect for a student learning, a power standard perhaps, and a concept that is so important that it needs the extra exposure of integration?</p>	<p>Academic course and CTE course</p>

Integrated Curriculum Opportunities for Teaching	
<p>What makes this concept applicable to be integrated between two or more CTE and academic courses?</p>	<p>Academic course and CTE course</p>
<p>How could you integrate the curriculum within your class?</p> <p>What are some integrated engagement methods that could be used to set up rigor and relevance?</p> <p>What instructional methods strike you as a best practice to integrate?</p> <p>What integrated learning activities could move students to reaching application?</p>	<p>Academic course and CTE course</p>

Unit Plan Objectives					
*For more information on learning objectives check out Bloom's Taxonomy					
The learners will be able to:					
Engagement, Instruction, Learning Activity, Assessment Plan					
CTE class	Engagement	Instruction	Learning activity	Assessment	What worked, and what could be improved for next time?
Academic class	Engagement	Instruction	Learning activity	Assessment	What worked, and what could be improved for next time?

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Appendix B: Integrated CTE and Academic Curriculum Website

Curriculum Project: CTE Search this site

Curriculum Integration

- Home
- About Integrated Curriculum and Framework
- Announcements and Integrated Curriculum Blog
 - Message about posting
 - Welcome and Meet the Author
- Calendar
- Documents: Templates and Handouts for Integrated CTE-Academic Curriculum
- Integrated Curriculum Project Process, Documents, Learning Activities, and Assessments
- Teacher Pages
 - Academic Integration Post
 - CTE Integration Post
 - History of Integration and Results of Integration
- Video of Integrated Curriculum Project and Teaching Integration
- Sitemap

Home

Welcome To Integration of CTE (career and technical education) and Academic Curriculum Project:

Welcome to my site!

My name is Michael Gullett. As a graduate student in Career and Technical Education from the University of Alaska, Anchorage; I have devoted my research focus, scholarship, and future work in academia to enhancing CTE. In creating this site I have focused on two areas of academia that are of extreme interest to me. This site is created to as a useful tool for teachers who wish to implement integration in curriculum into their class with another partner teacher. This website will become a helpful tool in explaining what effective curriculum is, how to identify curriculum to integrate, working with another teacher in collaboration, and together working through the process of integration to develop an integrated unit plan.

In creating a model and guidebook of integration, the focus is on curriculum, the process of integrating, and through this model achieving effective curriculum and instruction. The first installment of the project of integration focuses on the themes of curriculum and instruction. The second installment that will be uploaded to the website will focus on assessment, enrichments, and interventions.


Curriculum Project: CTE Search this site

Curriculum Integration

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About Integrated Curriculum and Framework

About The Integration of CTE and Academic Curriculum Project:



Integration of CTE and Academic Curriculum Guide

The integration of curriculum is a method used since the rise of Dewey's School that blends common and overlapping pedagogical concepts that are found in two or more courses. Integration as an educational concept goes beyond the development of curriculum. Integration can be used in further developing instructional practices, assessment tools, and learning activities that provide enrichment and/or interventions for students to ensure student learning. The guidebook provided below provides an outline on integrating curriculum, specifically to the integration of career and technical education and academic curriculum.

The main focus for using career and technical education and academic curriculum is because various Carl Perkins CTE Acts have required curriculum integration. Plus, various CTE schools and programs have several strong examples of integration. The goals of the project were to highlight the strengths in each integration program, and develop a curriculum guidebook that also moves integration into instruction, learning activities, assessment, and learning enrichments or interventions.