

Critical Success Factors in a High School Healthcare Education Program

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Abstract

Research has demonstrated career and technical education (CTE) programs have a strong positive influence on secondary students' behavior, attendance, academic achievement, and college persistence. Critical success factors common to career academies, small schools, and CTE programs include socio-emotional support and community, along with a culture of high expectations and student engagement. Yet little research has been conducted on social and cultural factors involved in these programs' success. This qualitative study focused on one high school healthcare education program in the Mid-Atlantic to identify the social and cultural critical success factors that contributed to successful student outcomes. Through classroom observations; interviews with administrators, teachers, partners, program graduates, and parents; surveys of graduates; and focus groups with current students, the following critical success factors emerged: learning environment and community, focused student support, engagement through a real-world context, and a culture of professionalism. These findings may help educators and districts focus their attention and efforts on the critical factors that impact student success as they seek to expand and improve CTE programs.

Keywords: career and technical education, healthcare careers, school culture

Introduction

Data on the outcomes of career and technical education (CTE) programs are attracting more attention nationally today than they have historically. CTE graduates have high rates of postsecondary enrollment (Farr, Bradby, Hartry, Sipes, Hall, & Tasoff, 2009; Staklis & Klein, 2010) and college persistence (Rodriguez, Hughes, & Belfield, 2012). Research also demonstrates that participation in CTE helps to improve students' academic performance, school behavior, and attendance (Brand, 2008; Farr et al., 2009; Hoachlander, 2008; Kosine & Lewis, 2008; Mekinda, 2012; Stringfield, Shumer, Stipanovic, & Murphy, 2013) and lower dropout rates (Brand, 2008; Feller, 2003; Hoachlander, 2008; Howard & Wu, 2009; The James Irvine Foundation, 2009). Additionally, CTE graduates who enter careers after high school are likely to realize higher wages than students who enter the workforce after graduation from academically focused programs (Hoachlander, 2008).

As a result of these impressive outcomes, federal policymakers are directing increased funding and attention to career and technical education. The recently passed Every Student

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Succeeds Act (ESSA, 2015) emphasizes career preparation and guidance and encourages states to include career readiness in their accountability systems. Following the passage of ESSA in September of 2016, a Perkins reauthorization bill was passed by the House of Representatives, and it is currently awaiting review by the Senate (CTE Policy Watch Blog, 2017).

As more funding is directed to initiate and expand CTE programs, it is critical that state and district leaders have a clear understanding of the factors that contribute to CTE program success. A review of recent research on the characteristics of CTE programs that influence student outcomes reveals specific key program features. Key features are elements built into program inputs to CTE programs that give rise to program structures and activities. Key features include: a focused program mission, alignment of course content with the knowledge and skills required to succeed in college or career (Barnett & Bragg, 2006; Chase, Goodin, & Nichols, 2006); hands-on instruction that prioritizes problem-solving (Brand, 2008; Stringfield et al., 2013; Thessin, Scully-Russ, Hildreth, & Lieberman, in press); dual enrollment credits (Barnett & Bragg, 2006; Stringfield et al., 2013; Thessin et al., in press); teacher background and administrative support (Brand, 2008; Farr et al., 2009); students with a passion for the program's focused profession (Packard, Gagnon, & Moring-Parris, 2010; Roach, Gamez Vargas, & David, 2015); work-based learning opportunities, including program location in a hospital setting (Farr et al., 2009; Thessin et al., in press); and an emphasis on career decision-making and career preparation.

Yet in order to improve and expand CTE programs and to ensure student success, we need to look beyond program structures, which are often the focus efforts of CTE development efforts, to understand program critical success factors. Critical success factors are the qualitative characteristics embedded in a program's culture and relationships that enable successful outcomes. While research has established a link between school culture and climate and student academic achievement in general education programs (Karadag, Kilicoglu, & Yilmaz, 2014; Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013; Tubbs & Garner, 2008), this research does not specify the social and cultural factors that influence student outcomes in CTE programs. Further, the studies that have examined these factors rely on survey data or other quantitative program measures (Kitchel, 2015; Snow & Okojie, 2013). The purpose of this study was to address these gaps by using a qualitative case study approach to explore key stakeholders' perceptions of the critical success factors that contributed to successful student outcomes in one high school healthcare education program.

Data reported in this article were gathered as part of a larger study that examined key features and critical success factors that influenced successful student outcomes in one Healthcare Education Program (HEP) (Thessin et al., in press). This CTE program was founded in the mid-Atlantic region in 2007 to prepare high school students to fill positions in the health sciences fields. The main question we sought to answer in the current research article was: What are the social and cultural critical success factors of a secondary CTE program that contribute to successful outcomes? Findings allow us to more fully understand the critical success factors of CTE programs and to identify unique features of the HEP to inform future program expansion and improvement.

Literature Review

Critical success factors are defined as the qualitative characteristics embedded in a program's culture and the relationships that enable successful outcomes. The extensive literature on school climate and culture explores "... the norms, values, beliefs, rituals, ceremonies, symbols, and stories that provides the personality of the school" (Karadag et al., 2014, p. 105). This research has established a link between positive school cultures and successful student outcomes (Karadag et al., 2014; Thapa et al., 2013; Tubbs & Garner, 2008). However, since we found a dearth of literature on social and cultural factors that influence students' success in CTE programs specifically, we expanded our literature review to include an examination of these factors in career academies and in small schools, which share similar characteristics with many CTE programs. We utilized JSTOR, ERIC, and Education Source databases, and such search terms as CTE, career and technical education, small schools, and career academies to locate literature from 2003-2017 that explained critical success factors of these types of schools and programs.

As we explored critical success factors identified in the literature for these three approaches to schooling, we utilized definitions based in research for each approach to limit our search and to clarify our use of these terms in this study. Kemple (2004) described career academies as school programs that "are organized as small learning communities, combine academic and technical curricula around a career theme, and establish partnerships with local employers to provide work-based learning opportunities" (p. iii). Somewhat similarly, the small schools movement, as initiated in the 1980s, was intended to establish schools in which students could be known well and in which deep critical inquiry could be developed, in addition to fostering democratic participation in schools (Fine, 2005). The movement was based on equity and access, social justice, detracking, inquiry-based instruction, decreasing drop out rates, college for all students, and sophisticated assessment (Fine, 2005). In contrast, career and technical education initially focused on preparing students for work. In the 1990s, among calls for increased accountability, vocational education "promoted more rigorous integration of academic and technical education and preparation for further education or work," and eventually, the name of the field shifted from vocational education to career and technical education (CTE) (Fletcher & Cox, 2012, p. 6). The shift to CTE signaled the program's emphasis on preparation for both careers and further education (Fletcher & Cox, 2012).

Similarly to the research on CTE programs, research on career academies and small schools has demonstrated a number of positive academic outcomes for students. Participation in career academies reduces high school dropout rates and increases high school completion rates (Brand, 2008; Castellano, Stone, Stringfield, Farley-Ripple, Overman, & Hussain, 2007; Farr et al., 2009; Hoachlander, 2008; Kemple, 2004; Kosine & Lewis, 2008; Mekinda, 2012; Stringfield et al., 2013). Likewise, students in small schools accumulate more credits, graduate at higher rates, demonstrate better attendance, and achieve higher test scores than students in larger high schools (Ancess & Allen, 2006; Barrow, Schanzenbach, & Claessens, 2015; Bloom & Unterman, 2013; Bloom & Unterman, 2014; Rivera-McCutchen, 2012; Schwartz, Stiefel, & Wiswall, 2013). Critical success factors found in the literature that are common to all three programs include socio-emotional support and community and a culture of high expectations and student engagement. The critical success factors that we identified as common across the three bodies of

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research formed the conceptual framework for our study, as displayed in Table 1 and as described further in this section.

Table 1

Conceptual Framework: Critical Success Factors Common to Career Academies, Small Schools, and CTE Program Literature

Socio-Emotional Support and Community	Culture of High Expectations and Student Engagement
Strong relationships between students and teachers and among students	Academic rigor
Sense of community	Engagement through focus on future career
Caring culture	High expectations for students

Socio-Emotional Support and Community

Initial research on CTE programs identifies relationships as a factor that influences successful outcomes. CTE classes are often small and may have more than one teacher, contributing to the provision of personalized attention from teachers and counselors and the development of strong interpersonal relationships between students and teachers and among peers (REL, 2012). CTE teachers are more likely than regular classroom teachers to view CTE students as emerging professionals, so they mentor and form strong relationships with them. REL (2012) found improved student engagement and reduced dropout rates in CTE programs both fostered and enhanced supportive interpersonal relationships among teachers and students. Farr et al. (2009) likewise found that relationships between students and teachers and among students in CTE programs positively influenced student motivation, engagement, and attitudes toward their futures.

Research on career academies and small schools also identified socio-emotional support provided to students and the sense of community created in these programs to be a critical success factor that contributes to positive academic outcomes. Kemple (2004) found career academy students reported more socio-emotional support from teachers and other students in their classes than students not in the career academy. Similarly, career academy successes included strong relationships between students and teachers and among peers (Dixon, Cotner, Wilson, & Borman, 2011; REL, 2012). Participants in Fletcher and Cox's (2012) study indicated the sense of community was a positive aspect of a career academy program. Further, career academies demonstrated improved student engagement and achievement through a caring school culture, including one-on-one teacher-student mentoring, praise and rewards for student and teacher accomplishments, and emphasis on collaboration and personal responsibility in school philosophies (Castellano, Sundell, Overman, & Aliaga, 2012).

In small schools, strong personal relationships have also been demonstrated to be key in providing academic benefits to students (Bloom & Unterman, 2013; Rivera-McCutchen, 2012). Anness and Allen (2006) found that the implementation of a theme for a small school, similar to

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career focused academies, could be more engaging for students, improving their performance, allowing them to demonstrate achievement in multiple authentic ways, and creating a sense of community. Small schools are generally found to have strong academic and personal support for students (Kahne, Sporte, de la Torre, & Easton, 2008) and may have positive impacts on student socio-emotional support (Rivera-McCutchen, 2012).

A Culture of High Expectations and Student Engagement

When teachers and leaders have high expectations for students' postsecondary success, students form a positive and concrete vision for their future, and it motivates them to engage in school and to learn (Barnett & Bragg, 2006). Initial research demonstrates that CTE's emphasis on future employment motivates learning, partly by helping students connect their current activities to future life goals (Farr et al., 2009). Strong relationships in CTE classrooms allow CTE teachers to share the so-called "hidden curriculum" of school and work, which helps build personal responsibility and accountability for learning (Kanny, 2015). Further, research has found that high expectations for students' success are also reinforced when students have opportunities to engage in meaningful work-based learning (Farr et al., 2009). Teachers and workplace mentors openly communicate and reinforce expectations for students' conduct in the workplace, which contributes to students' personal and professional development (Farr et al., 2009; Feller, 2003; Hanson, Prusha, & Iverson, 2015). These factors help to create a learning culture and improved student engagement within some CTE classrooms.

Similarly, career academies demonstrate improved student engagement and achievement through high academic expectations of students, seen in student progress monitoring by teachers and student goal-setting, and through connecting high achievement to college and careers (Castellano et al., 2012). Career academies may also improve student engagement by providing hands-on learning that connects them to potential fields of study (Dixon et al., 2011; Fletcher & Cox, 2012). Small schools have positive impacts on student engagement and achievement (Anness & Allen, 2006) through the selected theme. Academic rigor and strong personal relationships have been demonstrated to be key in providing academic benefits to small schools students (Bloom & Unterman, 2013; Rivera-McCutchen, 2012). While small schools incorporate personalization and attempt to build strong teacher-student relationships, a culture of caring without high academic standards did not prepare students for college (Rivera-McCutchen, 2012); both factors are essential to foster student success.

Initial research on social and cultural critical success factors in CTE programs has been confirmed by research on career academies and small schools. Common critical success factors include strong teacher-student relationships and a sense of community for their students, in addition to high expectations accompanied by academic rigor, all of which result in high attendance and graduation rates for students in these programs (Barnett & Bragg, 2006; Bloom & Unterman, 2013; Brand, 2008; Castellano et al., 2007; Castellano et al., 2012; Dixon et al., 2011; Farr et al., 2009; Fletcher & Cox, 2012; Hoachlander, 2008; Kemple, 2004; Kosine & Lewis, 2008; Mekinda, 2012; REL, 2012; Rivera-McCutchen, 2012; Stringfield et al., 2013). These common critical success factors formed the conceptual framework for our study. This study sought to examine stakeholder perceptions of how these social and cultural factors contribute to

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student success in the HEP, and to understand whether additional critical success factors should be prioritized in CTE program expansion and improvement.

Methodology

Case study methodology is appropriate when the investigator explores a real-life, bounded system through in-depth data collection (Yin, 1994; Creswell & Poth, 2018). Consistent with this methodology, we sought to understand the features of one secondary program housed within a larger school organization from the perspective of those who administered and supported the HEP and we aimed to understand students' experiences (Merriam, 2009). We gathered and analyzed multiple sources of data to provide a rich understanding of the HEP. The central research question was: What are the social and cultural critical success factors of a secondary CTE program that contribute to successful outcomes?

Qualitative data were gathered between March and July of 2015. Participants were sought based on their affiliation with or participation in the HEP. Results were based on analysis of thirty-two interviews of administrators, teachers, program partners, parents, students, high school counselors, and program graduates; two focus groups of students; classroom observations; a review of documents provided by participants; and a survey of graduates.

Context

The Healthcare Education Program (HEP) began in the fall of 2007 as a unique partnership among a foundation, a local school district, and a hospital system. It was founded to prepare high school students to become qualified healthcare professionals in areas with demonstrated workforce shortages. The program enrolls rising juniors and seniors from high schools in one school district who have an interest in pursuing a career in healthcare. The HEP is part of the district's Technical High School, to be called THS, and is directed by both the school's administrators and by the teachers of HEP classes. At the time of the evaluation, 522 high school students had enrolled in at least one HEP course and were considered to be graduates of the program by the school division.

The HEP is housed in a local hospital a short drive from the district's THS. Students who enroll in the HEP take all of their classes at the hospital, where both classroom and laboratory space is rented by the foundation for the program. The Director of the foundation manages the formal relationship between the program and hospital administration. The Director secures the space and equipment for the program, works with hospital administrators to encourage the development of formal internships for the students, and troubleshoots financial and logistical issues. Though the four teachers are supervised by the administrator of the THS and they participate in THS staff meetings and required activities, they enjoy wide latitude in the design and the day-to-day management of the program. The teachers collaborate on the design and delivery of the curriculum, on classroom management and student relations, in the coordination of student site visits to hospital departments (e.g. the Emergency Department, Morgue, Operating Room, Podiatry Clinic) and in developing partnerships with external health care providers (e.g. compound pharmacy). Though the foundation secured one formal, paid internship in the

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hospital's Medical Records Department for district students, the internship is not associated specifically with the HEP program.

The THS administrators developed a formal relationship with a local community college to offer dual enrollment credits for many of the HEP courses. Students who are selected for admission have an interest in the health and medical field and have demonstrated high achievement. Seventy-nine percent of students who enrolled in the HEP for two years (the junior and senior year of high school) enrolled in college immediately following graduation, and the program has a 97% graduation rate.

Data Sources

Consistent with case study methodology, we employed several methods to gather data to support the analysis, including semi-structured interviews with key adult stakeholders, focus groups with current students, classroom observations, review of program documents provided by participants, and a survey of graduates. The instruments associated with these methods were designed to collect background information on the program, information about the participants' roles and relationships to others in the program, and participants' perceptions on the outcomes of the program, as well as to probe views on the program features and practices that participants perceived contributed to student success. Many of the items included on these instruments were based on the findings of the literature review.

Semi-structured interviews. HEP school personnel were contacted and invited to participate in the study by a central office administrator responsible for CTE in this school district. We also gathered names of HEP program partners, program graduates, parents of graduates, and counselors from HEP teachers and administrators and invited these individuals to participate in the study (please see Table 2). Interview protocols were distinct for each of these participating groups, and included questions about program goals, program supports for students and teachers, program challenges and successes, post-graduation goals and accomplishments, and experience with the program (please see Appendix for the teacher protocol). Two members of the research team were present during the majority of the interviews to ensure consistency in posing interview questions and to ensure validity in discussion and analysis of data across participant groups. Interviews were approximately 60 minutes in duration.

Student focus groups. We held one focus group with current juniors in the program and one with current seniors in the program in May 2015. A total of 24 students participated in the focus groups after they were invited to do so by their teachers. The focus groups were conducted during one class period, limiting each to about 45 minutes in duration. Questions probed students' experiences in the program, including classroom and work-based activities and student and teacher relations, as well as whether their attitudes toward school and learning had changed as a result of their participation in the HEP program. Students also discussed the influence of the program on their post-graduation plans. Two researchers participated in each of the focus groups. One researcher facilitated the discussion, while the other listened closely and took detailed notes.

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Table 2

Summary of Interview Participants

Individual/Group	Number of Invitations Sent	Number of Participants
Teachers in HEP	4 invitations sent to all program teachers	4 interviews
Graduates of HEP	245 invitations sent to parents of graduates via email	8 interviews
District high school counselors who may refer students to the HEP	Invitation email sent to 90 counselors in this school district	4 interviews
Parents of HEP graduates	245 invitations sent to parents of graduates via email	4 interviews
Administrators at Technical High School	4 invitations sent to all program administrators	4 interviews
Internship and community partners	10 invitations sent	8 interviews

Classroom observations. We conducted three classroom observations—two of the Introduction to Health and Medical Science course and one of a combined class for second-year students enrolled in the Medical Laboratory Technology and Radiology Technology pathways courses. Each classroom observation was one hour in duration. Two researchers participated in each of the three classroom observations, each taking notes on a standard template. The template was designed to capture observations related to teacher and student activities and interactions.

Document review. We also collected documents related to the curriculum standards, lesson plans, the dual enrollment agreement with the community college, and the materials used by the counselors to market the program to students and parents.

Graduate survey. Finally, we designed and administered a survey to HEP graduates to better understand their experiences in the program and their subsequent occupations and educational pursuits. We obtained the “last known address” for 454 HEP graduates (from a total of 522 graduates) and sent letters inviting them to participate in an online survey housed in Qualtrics. Five individuals completed the survey following the first mailing of the invitation and three more responded following the distribution of a reminder. As a result of the low response rate, survey responses were used only to provide additional description in the findings and were not used to reach conclusions about the HEP.

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Data Analysis

To analyze the data, we first uploaded the interview transcripts, focus group notes, and qualitative comments to the survey to Atlas.ti for analysis. Next, the research team collaboratively identified deductive codes from the literature review and inductive codes from an initial review of documents to develop a codebook. We used the codes in the codebook to independently code each document in Atlas.ti and engaged in ongoing conversations about how each code was being used in order to ensure validity in identifying findings and themes (Saldana, 2013). Additionally, we achieved intercoder agreement through independent coding and comparison of selected documents to ensure we obtained similar results (Saldana, 2013). Codes were then combined to create themes which the team triangulated, first independently and then in collaboration, with the data from the classroom observations and the documentation review.

Results

Data gathered revealed a rich presence of the social and cultural critical success factors identified in the career academies, small schools, and CTE literature, while also adding new insights regarding specific factors that were unique to the HEP and may inform outcomes for other CTE programs. Critical success factors we identified in the HEP include: (1) learning environment and community, (2) focused student support, (3) engagement through a real-world context, and (4) a culture of professionalism, which relates to the theme of high expectations previously identified in the literature.

Learning Environment and Community

Teachers, current students, and graduates pointed to a shared interest in the healthcare field and to a close-knit and nurturing environment as key characteristics of the HEP that facilitate student success. Current students explained they enjoy doing their work for the HEP because both they and their classmates have an interest in the subject area. One student specifically said, “I am successful here because I have an interest in it.” Other students added, “Everyone at HEP loves HEP. They’re here because they like the class they’re in,” and “I find that this is easier here, I like what I’m doing. The other work – I don’t really care for history, so it’s a lot more than it actually is. This seems easier.” As many students articulated, “Work for HEP is work I want to do.”

Teachers said they build on students’ shared interest in the healthcare field and ask them to work together on teams to complete projects. The students “have the same kind of interest in healthcare that you do, and it’s amazing to see how they all work . . . they do these amazing presentations and things, and it’s just really cool,” said one teacher. As a current student explained, “we didn’t get to choose our partners, and you get to know someone else when you have to work with them. It’s hard not to get to know your class when there’s 10 people in there and you’re here all day together.”

This collegial environment is likely facilitated, in part, by the small class size. These factors also contribute to the close-knit environment that forms between students and teachers. One graduate wrote in the survey that “having a small class allowed for the students to get to

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know one another, and to build relationships. It also helped that our teacher was very involved in our learning.” Program teachers agreed with this student’s assessment. One teacher stated,

The other thing that I think is huge for them is the class size. The 10 people is much, much nicer than having 25. . . The other thing is the way we schedule. The block scheduling is huge to have them together all day, because they’re engaged in so many activities that are different than your classroom at the high school. . . They role play being an 80-year-old who just lost their spouse to look at patient interactions, so they become much closer as a group, I think.

Another teacher further added that the small class size facilitates the opportunity for students to learn in a variety of ways. She said,

I think we’ve all had a kid who can’t sit still, and I think in a normal classroom they don’t do well. So, we’re like, “Sure, get up. Stand in the back where you’re not bugging anybody. I don’t care. That’s fine, you can pace if you want as long as you’re not distracting everybody”. . . I think in that smaller setting the kids can give them some leeway, and I can give them some leeway, and they can just find what they need to be able to focus on the topics.

Similarly, another teacher said,

I’ve had parents tell me, “My kid really hated school, and they came to your program”. . . it’s just like they didn’t really see their possibilities until they got here, and then this is kind of a nurturing environment to be in . . . We spent all day in one setting, on one topic and cover a whole week’s worth of material in four hours.

In the focus groups, numerous current students talked about the positive benefits of learning and working with a small, new group of students at the CM-HEP. Students said, “Here, everyone wants to escape from their home school. Here you’re here with people that care, you have the same goals and aspirations.” Another student continued, “I love it here. There’s teacher support, student support, at my home school I have barely any friends. But I come here, and it feels like family.” Other students said, “We like HEP better than our home schools. It’s not just a class, everyone here has a connection, you can talk to anyone here,” and “You get to know everyone. We have similar interests.” One student said, “Here, I’m at a second home.”

Focused Student Support

The small class setting contributes to teachers’ abilities to get to know the students and to provide them with academic support; it also facilitates students’ support of one another. A current student explained, “We receive help from classmates, teachers, I can easily contact someone from my class and they’ll help you. It doesn’t matter who it is. Everyone talks to everyone.”

Teachers talked about their commitment to giving individual students in the program what they need to ensure they succeed. One teacher explained, “We tend to go right to the

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student and find out what's going on with them and see how we can help them.” Teachers also encourage students to help each other and “become their own network,” as one teacher put it. “I know all four of the instructors encourage them to support one another. It’s about all of us succeeding, because that’s healthcare. The nurse can’t work in isolation. The nurse is part of a team. And we all encourage the classroom as a team.”

Multiple teachers recalled specific instances in which a member of a class was struggling and the teacher set up a support network of other students for him/her. One teacher told us about a student whose home language was Korean who was struggling with medical terminology. The teacher asked the student’s classmates to review the medical language with her every day as they waited for the bus at THS, and they all jumped on the idea. “Probably their biggest support is knowing it’s a small group and they can count on one another,” the teacher said.

Students pointed to the support they receive from teachers in the program as well. One student said, “Here, teachers are concerned about you; it’s not the same at home school.” Another explained, “You have an interpersonal connection with your teachers here.” One student spoke about the connection that students have with their teachers and the support they receive to ensure their success: “You have to work hard to not do well. Even if you’re having a hard time, in a couple days, you’ll be back on top of it. At [our] home school[s], your teachers have so many students that they can’t help you. Here, since they only have two classes between the two days, they can really spend time with you and get to know you and help you out.”

A program graduate who was ill during her senior year and missed two weeks of class described how her teacher met with her two hours before school for multiple days after the student returned. The teacher “went above and beyond to make sure that the students in the class understood what we were learning and were able to prove that we knew the things that she was teaching,” the graduate recalled.

Student support is focused on not only ensuring that students succeed in the program, but also on supporting them as they pursue future goals and make career decisions—which everyone takes seriously, according to one graduate. She explained,

Let’s say you go to your normal high school and you say, “I want to be a doctor.” People scoff at you and say, “Everybody wants to be a doctor” . . . In my high school [HEP], you say, “I want to be a doctor,” and they encourage you, like, “What kind? Really? What are you thinking about?” And they get really excited with you, and then you get excited and you are both pumped up.

This culture of support and encouragement from peers and teachers also contributes to student engagement in the HEP.

Engagement Through a Real-World Context

Many people interviewed for this study emphasized that attending class in a hospital setting offered students significant opportunities for situated learning and exposure to the realities of a healthcare workplace and career. By coming to the hospital every day, students are

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exposed to the tools and activities involved in healthcare, and this “raised the bar because students understand that they need to take things seriously,” said a partner. Seeing procedures in action “makes what they are learning in the classroom real . . . and puts the book learning to the test in real life,” said a program partner. Further, students can figure out what they like and dislike and learn about opportunities they did not know existed, as one program partner of the HEP described.

The state-of-the-art facilities and equipment contribute to the real-world context of the HEP. Students in the program have access to a high-tech laboratory, complete with X-ray tables, phlebotomy training arms, and a Simulation Man, an anatomically correct human that sneezes. The program resources facilitate unique hands-on experiences for students by using “real equipment that is used in real doctors’ offices and real hospitals” such as a prescription-dispenser machine, as one participant explained. A current student reported being attracted to the program because the space “looks like a real hospital. You don’t really see that if you’re 15 or 16.” These facilities make it possible for students to “actually get in the lab and do actual analysis of blood work or anything that they’re looking at,” said an administrator. “All of that has been invaluable to the program.” Teachers described the further benefits of having the HEP classrooms located in a hospital. A student with an interest in plastic surgery was able to spend 45 minutes with a plastic surgeon in his office down the hall, one teacher reported. The hospital location also makes it possible for students to engage in clinical observations, something they would not get in a traditional high school, since the division cannot afford to transport students to off-site internships throughout the county.

Students also said their site visits and professional observations are extremely valuable to their learning. One student explained how surprised she was to observe the multi-tasking involved in healthcare work: “You see four to five patients a day [in nuclear medicine] and that involves a lot of multitasking.” Another student reported that during a visit to the night shift ER, he was exposed to “some pretty graphic things . . . cardiac arrest, drug overdose,” which gave him an exciting glimpse of hands-on work in the field. HEP students also participated in hands-on activities in the classroom, as one student explained: “In Medlab . . . we do gram stains and take slides of blood smears and stain them to see the cells.” According to a parent, her daughter’s exposure to real-world experiences through the program was different from the typical high school. “It was not all textbook, and it added that extra kick. She would have just done the routine high school thing and found it quite boring—this added a challenge for her.”

Further, students felt the real-world experience that HEP teachers bring to the classroom differentiates the program from their other high school experiences. “Our teachers have real clinical, professional experience, as opposed to a professor who studied a book,” said one student. “Every disease, she has a story behind it.” Another student added, “Our teachers are people in the field who have done what they’re teaching us; they have the hands-on experience and knowledge, more than what a textbook would explain. It’s more a person who’s there telling you what to expect.” Students clearly valued the anecdotes, experiences, and explanations offered by their teachers and said this helped to prepare them for their future careers. The teachers’ backgrounds also contributed to their abilities to advise students on future career options. One graduate commented on our survey:

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It was incredibly beneficial to have a teacher that was a previous nurse to not only teach the course, but also give advice and guidance throughout the college application process... Through HEP, I had access to resources who had direct experience and connections to the healthcare world and could help me choose the best option academically and financially after high school.

The hospital setting, authentic equipment, site visits and observations, and teachers' experiences in the healthcare fields contributed to the real-world context and the success of the HEP.

Culture of Professionalism

The requirement that students wear scrubs to class, as do teachers in the program, also contributes to students' sense of professionalism and to program success. Graduates and their parents talked about the fact that each student receives a white coat at the beginning of the program, which helps to develop and reinforce one's identity as a healthcare professional. "They gave him a lab coat and he felt like a professional," said a parent. An administrator added, "Those kids within the first month of school realize they are healthcare professionals. Going in there in their red scrubs, [something] as simple as that changes the whole attitude of the student. And they take that curriculum very seriously." A program administrator pointed out how teachers' high expectations helped to prepare students for college or work: "I think that the kids respond to [the teachers] because they do set the bar high, and they expect a certain level of professionalism from the kids." In addition, students recognized that they "were expected to take responsibility for our learning."

In classroom observations, we saw teachers treat the students as current professionals. Teachers interact with students in a comfortable, collegial manner not often seen in a high school setting. First, there was little evidence of hierarchy in the classroom. Teachers informally circulated among student teams and provided coaching, but offered little formal assessment of the student activity. Second, though students were engaged in performing the assigned task, we observed a fair amount of informal off-topic discussion among the students and between students and teachers. This informality is more characteristic of the workplace than the classroom. Finally, in an attempt to share contextual knowledge of medical practice with students, the lead instructor was quite candid about the tension between formal standards and informal practices in real-world settings. She explained that although there is a national standard governing how to draw blood, it was not always followed; some patients' veins require a different approach. The sharing of the informal dimensions of practice and insider knowledge may send a message that the teacher views the students as trusted colleagues.

Finally, graduates spoke about how the program helped them to develop professional behaviors and identities as healthcare providers. One graduate said that teachers taught them communication skills, such as "how to talk to one another" and use a "friendly and pleasant" tone. One student stated, "Our professionalism was different, we presented ourselves as more well-rounded than other students, we were more driven." Other students claimed the program "fostered a great amount of self-discipline and organization," helping them develop their professionalism. One graduate said she learned about the sensitivity required to work with patients, which helped her develop more compassion for her patients. Overall, an administrator

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claimed students developed “the confidence of how to carry themselves in an office—you just can’t teach that.”

Discussion

This qualitative evaluation of the HEP relied upon interviews with administrators, teachers, program partners, parents, students, program graduates, and counselors; focus groups with current students; classroom observations; and a survey of program graduates to identify critical success factors of the HEP. We specifically sought to identify and understand the social and cultural critical success factors of a secondary healthcare CTE program. Though the critical success factors we identified in the HEP did not differ substantially from those we had identified in the literature on CTE programs, small schools, and career academies in our conceptual framework (please see Table 1), the ways in which these factors manifest in the HEP are unique. Therefore, a revised conceptual framework that specifically identifies the social and cultural critical success factors identified in the HEP is provided in Table 3. Understanding these distinctions may provide insight into the factors that contribute to successful, vs. unsuccessful, program outcomes.

Table 3
Critical Success Factors Identified in the HEP

Learning environment and community	Focused student support from teachers and peers	Culture of professionalism	Engagement through a real-world context
Shared interest in healthcare careers and mutual support for career goals	Individualized attention from teachers and clear knowledge of students’ needs	Wearing a professional uniform: scrubs, white coats	Hospital setting with authentic equipment provides situated learning
Caring family-like community: among students and between students and teachers	Student-based support networks	Informality in teacher-student relationships	Site visits and observations to healthcare settings
Small class size	Support making career decisions	Preparation in communication skills, for interaction with patients and for work in an office	Real-world experiences shared by teachers from the field

First, as displayed in our initial conceptual framework (see Table 1), the literature identified strong relationships and a sense of community as a key social factor of program success, with small class sizes contributing to this sense of community (Dixon et al., 2011; Farr et al., 2009; Fletcher & Cox, 2012; REL, 2012). At the HEP, students described the unique learning environment and community that they shared, in contrast to some explanations from

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students and parents that the students disliked school until they attended the HEP. Students share interests and goals with their classmates in the HEP. Further, the structure of the program requires students to spend two full days per week together in one classroom, allowing them to get to know each other, and their teachers, well. Class sizes are limited by the availability of physical space in the hospital, also requiring enrollment in individual classes to be limited. These structural aspects of the program facilitate the presence of a unique learning environment focused on a specific healthcare education field, taught by teachers who formerly worked in the field, in a small learning community. Finally, all of these factors contribute to the development of a caring community in the HEP and to strong interpersonal relationships among both teachers and students (REL, 2012), likely contributing to the sense of engagement and the sense of belonging that both students in focus groups and graduates expressed.

Second, the literature identified strong teacher-student relationships and the provision of personalized attention as components of CTE programs and small schools (Bloom & Unterman, 2013; REL, 2012; Rivera-McCutchen, 2012), but at the HEP, these strong relationships result in focused student support. Kemple (2004) further articulated that career academy students receive more socio-emotional support than students not in the career academy. This commitment to student support at the HEP manifests not only as socio-emotional support, but also as career mentoring (Castellano et al., 2012) and tutelage from instructors, in addition to organized peer support. In sum, teachers are committed to provide extra support and attention to students who need it, and students with unique needs have those needs met. Not one administrator or teacher who taught in the HEP could recall a student who had failed to complete the necessary requirements to earn college credit in the HEP courses. Teachers provide individualized, personal support to ensure that all students who enroll in the HEP are successful in the program.

Additionally, the literature identified a culture of academic rigor and high expectations for students' postsecondary success as a factor that contributes to student success in school and motivates students to learn (Barnett & Bragg, 2006; Bloom & Unterman, 2013; Rivera-McCutchen, 2012). Students agree that you need to work hard to do well in the HEP, but study participants further elaborated that the culture of professionalism is a critical success factor of this program. Research suggests communication of expectations for students' conduct in the workplace contributes to students' professional development (Farr et al., 2009; Feller, 2003; Hanson et al., 2015). Not only do students in the HEP develop concrete professional skills in the program by participating in mock interviews and developing a professional resume as in many CTE programs; they are required to act professionally in class, which takes place in a hospital, and during numerous workplace observations. Both the students and teachers wear scrubs to all class meetings, thereby symbolically communicating that teachers and students learn together and are expected to uphold the same standards for professionalism.

Finally, evidence from research on CTE and career academies demonstrates that opportunities to engage in meaningful work-based learning (Farr et al., 2009) and hands-on learning opportunities in potential fields of study (Dixon et al., 2011; Fletcher & Cox, 2012) contributes to student engagement and student success. The HEP provides both work-based learning experiences and hands-on learning through its location in a hospital, a unique characteristic of the HEP. The setting offers authentic equipment for students to utilize, in addition to site visits and observations to various offices and locations in the hospital (including

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the Emergency Room). Further, teachers in the HEP share their real-life experiences in the healthcare fields (prior to entering a teaching career). A growing body of literature on relevance of learning to future careers confirms that students are most likely to be successful when they understand the concept's relation to and relevance in the real world (Bennett, 2007; Coker & Porter, 2015; Marcketti & Karpova, 2014); similarly, Symonds, Schwartz, and Ferguson (2011) believe most young adults learn best in programs where learning is contextual and applied in an authentic work setting. By having the opportunity to shadow practicing medical professionals, for instance, students gain understanding of what their potential careers could be like after high school. As a result, the real-world context offered to students through their participation in the HEP assists many students in choosing a specific future career prior to enrolling in a post-high school college program.

Areas for Future Research

Further research on effective CTE programs would serve to confirm the critical success factors we identified from our examination of the HEP. For instance, some existing research has found that teachers who value and are motivated to teach CTE are also critical to successful programs. Farr et al. (2009) found that when members of the teaching team share the same philosophy and goals for CTE, this common vision helps to create a culture among teachers that supports learning and engagement. In the HEP, while teachers were based within one specific area of the hospital, no evidence was gathered that teachers shared lesson plans, objectives, or common syllabi even though they often taught the same courses to separate groups of students. It will be important to identify how teachers work together to build and reinforce a culture of high expectations and student engagement in a CTE program, thereby contributing to student success.

Finally, existing research shows that CTE programs face many challenges to engaging industry in the design of relevant curriculum and to offering students authentic work experiences. The HEP's reliance on practicing professionals to teach courses in the program, as well as its location in a fully functional hospital, has found a unique way to overcome this challenge. More research on how CTE programs are creatively tapping industry resources may result in further innovation to the CTE model.

Conclusion

As CTE programs gain increasing attention at national and local levels, it will be important for current and new CTE programs to consider the social and cultural critical success factors that contribute to program effectiveness. As we found from this study, the specific way in which a critical success factor is manifest in the program influences the program's success. Current literature identified socio-emotional support and a sense of community, as well as a culture of high expectations and student engagement as social and cultural factors that are critical to student success. In the HEP, the critical success factors were further elaborated and distinguished as: learning environment and community, focused student support, a culture of professionalism and engagement through a real-world context. These findings may help educators and districts improve CTE programs by focusing their attention and efforts on the critical factors that impact student success.

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References

- Ancess, J., & Allen, D. (2006). Implementing small theme high schools in New York City: Great intentions and great tensions. *Harvard Educational Review*, 76(3), 401-416.
- Barnett, E. A., & Bragg, D. D. (2006). Academic pathways and increased opportunities for underserved students: Crosscutting themes and lessons learned. *New Directions for Community Colleges*, 2006(135), 101-107.
- Barrow, L., Schanzenbach, D. W., & Claessens, A. (2015). The impact of Chicago's small high school initiative. *Journal of Urban Economics*, 87, 100-113.
- Bennett, J. V. (2007). Work-based learning and social support: Relative influences on high school seniors' occupational engagement orientations. *Career & Technical Education Research*, 32(3), 187-214.
- Bloom, H. S., & Unterman, R. (2013). Sustained progress: New findings about the effectiveness and operation of small public high schools of choice in New York City. Retrieved from: https://www.mdrc.org/sites/default/files/sustained_progress_FR_0.pdf
- Bloom, H. S., & Unterman, R. (2014). Can small high schools of choice improve educational prospects for disadvantaged students? *Journal of Policy Analysis and Management*, 33(2), 290-319.
- Brand, B. (2008). Supporting high quality career and technical education through federal and state policy. In Washington, DC: American Youth Policy Forum. Retrieved from <http://www.usmayors.org/workforce/documents/10-10-08CTEMeetingPaper.pdf>
- Castellano, M., Stone III, J. R., Stringfield, S., Farley-Ripple, E. N., Overman, L. T., & Hussain, R. (2007). Career-Based Comprehensive School Reform: Serving Disadvantaged Youth in Minority Communities. *National Research Center for Career and Technical Education*. Retrieved from: <http://www.nrccte.org/resources/publications/career-based-comprehensive-school-reform-serving-disadvantaged-youth-minority>
- Castellano, M., Sundell, K., Overman, L. T., & Aliaga, O. A. (2012). Do career and technical education programs of study improve student achievement? Preliminary analyses from a rigorous longitudinal study. *International Journal of Educational Reform*, 21(2), 98-118.
- Chase, E., Goodin, P., & Nichols, W. R. (2006). Preparing students for the job market: An evaluation of one district's efforts. *ERS Spectrum*, 24(1), 18-22.
- Coker, J. S., & Porter, D. J. (2015). Maximizing experiential learning for student success. *Change*, 47(1), 66-72. doi:10.1080/00091383.2015.996101

CRITICAL SUCCESS FACTORS

- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry & research design: Choosing among five approaches*. Thousand Oaks, CA: Sage.
- CTE Policy Watch Blog (2017). Retrieved from: <http://ctepolicywatch.acteonline.org/2017/05/house-reintroduces-perkins-reauthorization-bill.html>
- Dixon, M., Cotner, B., Wilson, T. N., & Borman, K. (2011). Implementing career academies in Florida: A case study approach to understanding successes and obstacles. *Career and Technical Education Research*, 36(3), 207-227.
- Every Student Succeeds Act (ESSA). Retrieved from <http://www.ed.gov/essa>
- Farr, B., Bradby, D., Hartry, A., Sipes, L., Hall, L., & Tasoff, S. (2009). Evaluation of the demonstration sites in the ConnectEd Network. MPR Associates, Inc. Retrieved from <http://files.eric.ed.gov/fulltext/ED537843.pdf>
- Feller, R. W. (2003). Aligning school counseling, the changing workplace, and career development assumptions. *Professional School Counseling*, 6(4), 262-271.
- Fine, M. (2005). Not in our name: Reclaiming the democratic vision of small school reform. *Rethinking Schools*, 19, 11-14.
- Fletcher Jr., E. C., & Cox, E. D. (2012). Exploring the meaning African American students ascribe to their participation in high school career academies and the challenges they experience. *The High School Journal*, 96(1), 4-19.
- Hanson, J. M., Prusha, T., & Iverson, C. (2015). Principal, teacher, and counselor views of Concurrent Enrollment. *New Directions for Community Colleges*, 2015(169), 71-81.
- Hoachlander, G. (2008). Bringing industry to the classroom. *Educational Leadership*, 65(8), 22.
- Howard, D. & Wu, P. (2009). Assessing California's multiple pathways field: Preparing youth for success in college and career. *The James Irvine Foundation Focus*, May 2009.
- The James Irvine Foundation. (2009). Making Progress through California multiple pathways: Findings from the ConnectEd Network of Schools evaluation 2007-2008. *Insight*, September 2009.
- Kahne, J. E., Sporte, S. E., De La Torre, M., & Easton, J. Q. (2008). Small high schools on a larger scale: The impact of school conversions in Chicago. *Educational Evaluation and Policy Analysis*, 30(3), 281-315. doi:10.3102/0162373708319184
- Kanny, M. A. (2015). Dual enrollment participation from the student perspective. *New Directions for Community Colleges*, 2015(169), 59-70.
- Karadag, E., Kilicoglu, G., & Yilmaz, D. (2014). Organizational Cynicism, School Culture, and Academic Achievement: The Study of Structural Equation Modeling. *Educational Sciences: Theory and Practice*, 14(1), 102-113.
- Kemple, J. J. (2004). Career Academies: Impacts on Labor Market Outcomes and Educational Attainment. *MDRC*.

CRITICAL SUCCESS FACTORS

- Kitchel, A. (2015). An examination of the contribution of career and technical education to STEM education, student leadership, and career readiness. *Journal for Research in Business Education*, 57(1), 18-30.
- Kosine, N., & Lewis, M. (2008). Growth and exploration: Career development theory and programs of study. *Career and Technical Education Research*, 33(3), 227-243.
- Marcketti, S., & Karpova, E. (2014). Getting ready for the real world: Student perspectives on bringing industry collaboration into the classroom. *Journal of Family & Consumer Sciences*, 106(1), 27-31.
- Mekinda, M. A. (2012). Support for career development in youth: Program models and evaluations. *New Directions for Youth Development*, 2012(134), 45-54.
- Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.
- Packard, B. W. L., Gagnon, J., & Moring-Parris, R. (2010). Investing in academic science for allied health students: Challenges and possibilities. *Career and Technical Education Research*, 35(3), 137-156.
- REL Southeast. (2012). The Evidence-Based Education Request Desk at REL-SE. Retrieved from <http://files.eric.ed.gov/fulltext/ED537131.pdf>
- Rivera-McCutchen, R. L. (2012). Caring in a small urban high school: A complicated success. *Urban Education*, 47(3), 653-680.
- Roach, R., Gamez Vargas, J., & David, K. M. (2015). Eliminating barriers to dual enrollment in Oklahoma. *New Directions for Community Colleges*, 2015(169), 31-38.
- Rodríguez, O., Hughes, K. L., & Belfield, C. (2012). Bridging college and careers: Using dual enrollment to enhance Career and Technical Education pathways. NCPR brief.
- Saldana, J. (2013). *The coding manual for qualitative researchers*. Washington, DC: Sage Publications.
- Schwartz, A. E., Stiefel, L., & Wiswall, M. (2013). Do small schools improve performance in large, urban districts? Causal evidence from New York City. *Journal of Urban Economics*, 77, 27-40.
- Snow, A., & Okojie, M. O. (2013). An assessment of CTE programs in rural school district based on Carl Perkins academic standards and placement identifiers. *International Journal of Vocational Education & Training*, 21(1), 5-15.
- Staklis, S., & Klein, S. (2010). Technical skill attainment and post-program outcomes: An analysis of Pennsylvania secondary Career and Technical Education graduates. *National Research Center for Career and Technical Education*.
- Stringfield, S., Shumer, R., Stipanovic, N., & Murphy, N. (2013). Programs of study: A cross-study examination of programs in three states. *International Journal of Education Reform*, 22(4), 313-333.

CRITICAL SUCCESS FACTORS

- Symonds, William C., Schwartz, R., & Ferguson, R. (2011). Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century. Cambridge, MA: Pathways to Prosperity Project, Harvard University Graduate School of Education.
- Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research*, 83(3), 357-385.
- Thessin, R., Scully-Russ, E., Hildreth, J., & Lieberman, D. (in press). Key features to inform student outcomes: Learning from a high school healthcare education program. *International Journal of Educational Reform*, 27(2)..
- Tubbs, J. E., & Garner, M. (2008). The impact of school climate on school outcomes. *Journal of College Teaching and Learning*, 5(9), 17.
- Yin, R. K. (1994). *Case study research: Design and methods*. Thousand Oaks, CA: Sage.

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Appendix Interview Protocol for Teachers in the HEP

Background

1. Could you tell us about yourself and your role with the HEP program to date?
2. How did you come to be involved in the program? Why do you believe you were selected to teach in the program?

Program Goals and Curriculum

3. How would you define the goals for the program?
 - a. How do these goals align to or differ from the overall goals for the school and district?
 - b. What type of student are you intending to serve through the program?
 - c. How do you recruit students for the program?
 - d. Do you believe you are preparing students for college? Or for an immediate career in the health sciences field?
 - e. What differentiates the HEP program from other opportunities for high school students in your division?
4. Describe the program's curriculum and requirements for completion.
 - a. How is workplace experience built into the program?
 - b. Would you speak to any specific ways in which the program integrates both academic and technical components and skills?
 - c. Are there any particular instructional approaches that are built into the program or that all teachers utilize? If so, how did you learn about these particular instructional strategies?
5. Are there any partnership agreements, such as articulations with postsecondary education institutions, or agreements for internship placements and/or employment with local businesses, that you could tell me about? What role do these partnerships play in the program? What is the nature of your interaction with these partners?

Supports for Teachers and Students

6. Who works most closely to support the program and its students and teachers at the school level (i.e., any administrative personnel)? At the district level?
 - a. What types of support do they provide?
7. Were you given any particular training or professional development in preparation for this position?
8. What supports and/or resources do you, as a teacher, receive?
 - a. Are there any particular supports or actions that you have received that you believe have facilitated your work and/or your students' success?
9. To what extent do teachers in the program collaborate, or do you collaborate with core content teachers at Monroe or at other sites, in any structured ways?
 - a. What is the content and focus of your work together?
 - b. How do you collaborate with parents, if at all?
10. How are students supported to ensure their success in the program, and who provides this support?

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- a. Do students have mentors in the fields they intend to pursue? If so, who are the mentors?
11. What would you say are the top 3 reasons why students do or do not complete the program?
12. What type of support is available to you from the district, school, partners, and others to ensure students are being prepared with the skills needed to achieve your program goals?

Post-Graduation

13. Describe the types of college opportunities, careers, or other post-secondary paths that your graduates have pursued.
14. Can you identify any specific effects or successes you think the program had on the program graduates? On the school and district as a whole?
15. If you had to identify three things you would improve about the program, what would they be?
16. What would you identify as core components of HEP that have helped to facilitate its success, and should therefore be included in similar types of programs in other districts?