

Professionalism, Sense of Community and Reason to Learn: Lessons from an Exemplary Career and Technical Education Center

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Abstract

With current focus on academic proficiency, career and technical education (CTE) programs have received less emphasis as an alternative to traditional high school curricular experiences. Yet, this study found that when compared to peers in general high school settings, students in one rural CTE high school center perceived significantly more appeal, challenge, choices, meaningfulness and self-efficacy in their classrooms. Thus, an extensive qualitative study provided insights into this environment that distinguished it from more traditional secondary school settings. Themes of professionalism, sense of community, and reason to learn emerged in data analyses. Results offer methods that secondary educators can use to engage students in meaningful, challenging learning. Further, data revealed the experiences of students in this center's CTE programs. Findings led to the conclusion that efforts to leave no children behind should include CTE as part of the continuum of educational services.

In this study, we chose to extensively and qualitatively investigate an exemplary career and technical education (CTE) center that emerged as an anomaly in a national instrumentation study concerning secondary student perceptions of their classroom experiences. Student perceptions concerning Appeal, Challenge, Choice,

Meaningfulness, and Self-efficacy at this center existed at levels much higher than those of the other 7000+ students in the sample, leading us to wonder what distinguished this particular school from the other 25 schools in the sample. We believed that we could gain and share important insights into a school where students rated their educational experiences so highly on the instrument scales. Further, we were intrigued that this school differed from the rest of the schools in the sample in that it was a CTE center, whereas the remaining schools in the sample were more traditional secondary schools. We wondered whether this center might provide insight concerning effective means of engaging and educating secondary students that more traditional settings had not considered.

Background

Quality education should be the goal of any program whether academic or vocational. According to a report from UNESCO, CTE programs should provide balance between theory and practice (Hiebert & Borgen, 2003). In most CTE programs, career and academic subject matter are taught together. Technical skill training requires some understanding of theory and background that pertains to the field of study. Contextual learning emphasizes employability skills, from job-related skills to workplace ethics. Students explore interests and careers while progressing through regular school curriculum. Clifford and Wilson (2002) described the process of contextual teaching and learning that emphasizes authentic experiences in problem-based learning situations. Collaboration and purposeful activity are the mainstays of contextual teaching and learning. Also important to this method is the use of authentic assessment and student centered environments. Placing education within the context of career training allows the learner to take center-stage in a learning process directly relevant to their future plans.

Recent changes in CTE, according to Chappell (2003), have been precipitated by both economic and educational reform. CTE, however, has not been immune from the scrutiny of educational reform movements, with recent cuts to funding in this area just one indication of waning support. CTE has as goals to prepare students to become future workers and to promote lifelong learning. There appears to be a shift in CTE away from basic to more advanced training that emphasizes the connection to industry expertise (Chappell, 2003). Legislation regulating CTE has traditionally been focused on job training to the exclusion of academics. Rojewski (2001) stated that more recent laws have kept pace with educational reform seeking to integrate CTE with academic education with an understanding of accountability. Among the initiatives enacted through Perkins III is the need to incorporate performance standards that combine academic and CTE standards and lead not only to high school diploma, but also to postsecondary credentials (Lynch, 2000). Velde and Cooper (2000) made the case for an apprenticeship model that includes workplace training with competency-based education. The results of their investigation on the perspectives of CTE learning demonstrated that students participated in order to gain

career benefits. Specifically, students chose a specific CTE program because it fit with their learning styles and allowed them to prepare for a career or trade.

Effective CTE programs include support systems such as counseling and at-risk interventions that contribute to students' success. Solberg, Howard, Blustein, and Close (2002) discussed the systemic factors that affect attitudes and behaviors in adolescents, namely the school, family and community. Circles of influence exist in which individual students must interact in order to function in society (Brofrenbrenner, 1994). For students in CTE programs these influences include the school and the workplace. Programs, therefore, must align themselves with the requirements of the field of study without ignoring the needs of the students. Kenny, Blustein, Grossman, and Gallagher (2003) discussed the impact of perceived barriers to the success of students in CTE programs. They suggested that perceptions of support had directly affected students' attitudes and career aspirations. Students who felt supported by their family and schools were engaged and positive about the future. Perceptions about the relevance of school to future career possibilities may also pose barriers to student success (Blustein, Juntunen, & Worthington, 2000; Worthington & Juntunen, 1997). Students who believe themselves to be working toward a meaningful and attainable goal are more likely to be engaged in their work. Motivation for school cannot be assumed simply because students are on a direct career path, as the individual social context of each student must also be considered. Purpose and connection serve as the foundation of any good CTE program. Also important are a firm grounding in the theory and skills of a field, as well as, support from school and family.

It is commonly believed that effective instruction should respond to learners' needs and seek to increase their motivation, interest, and awareness. Since learners can serve as an important source of information about the effects of CTE on retention and employment, and the perceived value of CTE courses (Womble, Jones, & Ruff, 1995), students' perspectives should be studied. According to Webb (1984) systematic use of student data pertaining to academic matters (e.g., student perceptions of academic quality, competition for high grades, amount of work required in courses, adequacy of advice and guidance) can be used to establish goals for academic and other programs, and to monitor progress toward those goals.

The social nature of learning has been widely acknowledged (e.g., Dewey, 1938; Lave & Wenger, 1991), thus creating appropriate social learning environments that foster learning throughout life is a desirable goal. Students' perceptions play important roles in both teaching and learning; thus researchers have identified several factors that significantly affect students' attitudes and learning within the context of CTE education. Among professional factors that affect students' perceptions of learning in the CTE setting are curriculum, teaching strategies, learning styles, educational resources, and learning opportunities (Barrett & Kepler, 1991; Richard & Yossi, 1995). Others have recognized the important influences of affective factors on teaching and learning, and the important relationship between students' motivation

and learning (Gibson, 2004; Soliday & Sanders, 1993). Furthermore, it is generally acknowledged that the learning environment in which students, their peers, teachers, families, and communities interact plays an indispensable role in CTE education. Shumer (2002) asserted that CTE educators need to engage students and subject matter through purposeful relationships focused on personal development, caring, and cognitive growth.

In an effort to understand how professional factors interact with students' motivation in CTE programs, researchers have investigated students' career aspirations and their attitudes toward work and career-related issues. For example, Sutphin and Newsom-Stewart (1995) found that students enrolled in agricultural education reported activity-centered learning, opportunities for work experience, and teamwork and life skills as reasons for enrolling in this course. Womble, Jones, and Ruff (1995) examined perceptions of students enrolled in CTE courses and found them generally positive about work and career-related issues. They determined that students form perceptions based on three factors—career knowledge and success, school-to-work awareness, and career choice limitations. Cooksey and Athanasou (2001) found that career interests influenced students' selections of CTE areas of study and Plank (2002) found that students who enrolled in CTE courses were less likely to drop out of high school.

Other researchers have sought to understand teaching strategies and learning styles in CTE. Athanasou and Petoumenos (1998) suggested that vocational education teaching is of reasonably uniform quality and usually highly rated by students. Stitt-Gohdes (2001) conducted a study to determine if the preferred learning styles of secondary business students matched the preferred instructional styles of their teachers. They concluded that insufficient evidence existed to definitively state that the instructional preferences of these teachers matched the learning preferences of their students. Most work reviewed focused on professional factors in CTE, with little attention given to affective components, which could provide a richer understanding of the context of CTE and its students.

A few researchers have investigated the learning environment, as a meaningful component that affects students' perceptions and learning. Others have explored the relationships among students and their peers, teachers, families, and communities and how these relationships affect students' perceptions of their learning experiences in CTE. Dormody and Sutphin (1991) found relationships between student and teacher participatory interaction and recommended establishing a slightly student-dominated student—teacher participatory interaction during group problem solving to maximize student motivation and satisfaction. Dormody (1992) explored preferences for student—teacher participatory interaction and student motivation to participate, and found group problem solving encouraged student motivation in agricultural education. Furthermore, Koponen and Lasonen (1994) studied the mathematics orientation styles and differences in styles among a sample of Finnish CTE and academic high school students. By analyzing the information gathered from

an attitude and opinion scale, they concluded that confidence correlated positively with achievement in mathematics, and coping and anxiety related negatively with achievement. Though some research exists concerning affective factors and CTE, further examination of students' motivation and learning, the relationship between students and their peers, and their educational environment will add to the knowledge of the teaching and learning in CTE programs.

The need for this kind of information and knowledge is particularly relevant today, as integrating academic and occupational learning has become a core principle of school-to-work and CTE reforms (Carl Perkins Amendments of 1998; School-to-work Opportunities Act of 1994). Some researchers even believe that this emphasis on integration has been one response to the increasingly technical nature of many jobs, requiring a workforce comprised of skilled problem-solvers with strong applied academic preparation (Resnick & Wirt, 1996; Stasz, Kaganoff, & Eden, 1994; Stern, Finkelstein, Stone, Latting, & Dornsife, 1994).

Purpose

In this qualitative study we sought to examine and understand the perceptions and experiences of students in a CTE education setting, specifically a careers center that they attended daily for half a day during the school year. Students were observed in classrooms and interviewed about their experiences, as the school was holistically studied. Of specific interest to this project were the experiences and opportunities that promoted the positive perceptions of the students who attended this school.

Methods

Participants

Sampling procedures: school. We purposively selected a Midwestern high school CTE center for in depth qualitative study because it emerged as an anomaly in a previous research study in which an affective instrument was being developed. This instrument, Student Perceptions of Classroom Quality (SPOCQ, Gentry & Owen, in press), assesses student attitudes toward their class experiences on five constructs: Appeal, Challenge, Choice, Meaningfulness, and Self-efficacy using a five-point Likert response scale (1=*SD* to 5=*SA*). This particular school was one of 26 schools from seven states and one foreign country in a sample of 7,500 students and 300 teachers. Students enrolled in this school rated their teachers ($n=20$) significantly higher on the constructs than did students in any of the other schools (the entire school averaged more than .5SD above the mean scores of the sample on every construct—a medium to large effect according to Cohen (1988). Only 20 other teachers in the entire sample received such high ratings. Clearly, on the constructs measured by SPOCQ, which have been shown to be central to learning and motivation, substantitive differences existed between this school and the others in the instrument development sample. Thus, we selected this school for in-depth study in

an attempt to understand and elaborate upon the conditions underlying the positive perceptions of its students.

Sampling procedures: programs. Three of 20 programs at this center have academic admission criteria for students, and were purposively included, due to our interest in simultaneously investigating high achieving or gifted students in a CTE setting. We randomly selected six other programs from those at the school for intensive study. Thus, we selected nine programs for study as depicted in Table 1.

Table 1
Center Programs and Selection Method for Focused Study

Program	Admission Criteria	Selected for Study
Auto Diesel	No	Random
Building Trades	No	No
Business Services Technology (BST)	No	Random
Certified Network Administrator (CNA)	Yes	Purpose
Collision Repair	No	No
Computer Aided Design	No	No
Criminal Justice	Yes	Purpose
Early Education	No	Random
Electrical Technologies	No	No
Information Technologies (IT)	Yes	Purpose
Marketing	No	No
Medical Technologies (MedTech)	No	Random
Natural Resources/Agri Tech (NRAT)	No	Random
Natural Resources/Agri Tech 10	No	No
Precision Machining	No	No
On the Job Training (OJT)	No	No
Teacher Education	No	No
Tourism and Foods	No	No
Welding	No	Random

Sampling procedures: students. Six students from each program were selected for in-depth interviews. This selection was conducted in two parts. First, due to our interest in studying talented CTE students as a subset of the larger study, we asked teachers of selected programs to identify students who were gifted in their program (but not necessarily academically gifted) for purposive inclusion in the study. To assist teachers with identification we provided talent indicators, and over-sampled gifted students by including the top two students from each of the nine programs in the sample. Prior to selecting the rest of the sample we eliminated any remaining students who had been nominated as gifted. This helped to ensure inclusion of students of varying abilities in our entire sample. We then randomly

selected four other students from each program to complete the student sample; thus including six students from each selected program in the study. Once the random selection was completed we checked the demographics of the selections with those of the school to ensure that we had representation from all the high schools that sent students to the careers center, and that we had representation of students in special programs such as special education and at-risk intervention programs. This check of demographics revealed that our sample was a stratified representation of the school population.

Sampling procedures: faculty and staff. All program managers from the programs selected for study were interviewed and observed. Additionally, we interviewed other key personnel to add depth to the understanding of the adult influences at the school. Thus, we interviewed all administrators (i.e., Director, Principal, Assistant Principal), one counselor (randomly selected), two paraprofessionals from the selected programs (randomly selected), the special education resource teacher, the at-risk program coordinator, the day custodian, and one secretary (randomly selected). In doing so we acknowledged that a school environment reflects the interactions among all the participants in the learning community, reaching far beyond the classroom.

Context of the participants¹. The careers center exists in a rural area of a Midwestern state and serves students from three member high schools from within its county. Because it is funded through a local initiative, students from the member high schools do not pay to attend the center, and these high schools do not lose state aid when they send students to the center. The cost of educating the approximately 800 students who attend the center each year amounts to about \$6,900 per student. This center also serves students from up to 10 other secondary schools including, private, charter, alternative, and out of county schools on a tuition basis of \$1,700 per year per student. Sixty-five percent of the students who attend the center come from the member high schools.

Students must attend their home high school for one-half day to be eligible to attend the center for the other half of the school day. Each program offers a morning session and an afternoon session that runs for a 2.5 hour block of time. Students from member schools ride buses from 1 to 10 miles each way, and tuition students come from as far away as 25 miles.

According to the 2000 census, when compared to the state averages, the careers center's county has more children under 17 years of age living in poverty (15% vs. 14%); lower median household income (\$38,760 vs. \$44,667); fewer people with bachelor's degrees (10.6% vs. 21.8%), and a slightly higher graduation

¹ Information concerning the local context came from reviewed documents such as the NCA reports, audited expenditures, statistical enrollment data, and consumer report documents.

rate (90% vs. 89%). Ninety-three percent of the people in this county identify themselves as white compared to 80.2% statewide (U.S. Census, 2000).

The state in which this center exists has similar services for high school students in each of its counties, though each county funds and operates its services differently. Students in this state participate in statewide assessments, but do not have to meet a uniform high stakes measure in order to graduate from high school. Individual districts determine whether students meet graduation requirements. Students who attend this center accurately represent students in the county who only attend high school on a variety of variables including socioeconomic status, postsecondary attendance, percentage identified for special education services, and achievement levels. Other centers in the state may not have such an even representation of high school students due to factors such as local schools having to pay for students to attend and losing these students in their state aid counts, or perceptions that CTE centers serve non-college bound students. Because this center is funded through a local, cooperative initiative, the three member high schools send from 50% to 80% of their junior and senior class students to the center.

Design

Using ethnographic and grounded theory approaches (Strauss & Corbin, 1990) and qualitative methods of interview, participant observation, focus groups, and document review, we studied this school. We focused on the experiences and perceptions of the students in the career and technical setting in an attempt to understand the nature, experiences and needs of students working in specific career areas.

According to Creswell (1994), qualitative research concerns process rather than outcomes in an attempt to find meaning. Qualitative research is open and emergent, enabling the story of the data to unfold, and qualitative researchers attempt to go beyond simply quantifying behavior and address the question of why. Researchers immerse themselves in the setting—one salient feature of qualitative research (Bogdan & Biklen, 1992). In a naturalistic approach to data collection, the researchers become the primary instruments of data collection. In order to understand the entire context of the situation, researchers collect information simultaneously in a variety of ways to provide a full and descriptive account of the situation.

As researchers, we worked together to acquire data saturation and ensure reliability of results. Data were triangulated among all participants, and member checking occurred regularly to guarantee veracity. This involved checking information among participants to verify and determine its relevance and soliciting feedback from participants concerning results, conclusions and accuracy of reporting prior to publication. Involving multiple researchers in this study added credibility and believability by providing multiple perspectives, observations, and views in the qualitative data analyses. Both primary researchers spent equal time on site and were

involved in all phases of data collection and analyses. Secondary researchers viewed, analyzed and checked data, helping to coalesce themes and descriptions.

Data Collection

Interviews and focus groups. Rubin and Rubin (1995) discussed interviewing in terms of the human element and the relationship between the interviewer and interviewee. Each assumes a role that is crucial to the successful outcome of the endeavor. Above all, qualitative interviewing requires intense listening so that the true message can be heard and accurately interpreted. During this study we conducted both individual and small group interviews, using audiotape and transcription to ensure accuracy in analyses. Each student participant was interviewed using a semi-structured interview protocol that included questions about the school, staff, and curriculum. We randomly selected focus groups from the programs not included for intensive study with the purpose of verifying and extending the data collected from the students in the selected programs. These groups included 2 to 4 students who were asked to discuss the questions from the same interview protocol used in the individual interviews. Programs that provided focus groups included: Business Management and Marketing, Natural Resources and Agricultural Technology 10, Tourism and Foods Technology, Precision Machining, Electrical Technologies, Computer Aided Design, and Collision Repair Technologies. Finally, we interviewed faculty, staff, and administrators using a similar protocol to that used with students. The purpose of these interviews was to add the adult perspective regarding the environment and to triangulate the data received from students and from our observations. Each individual or group of participants was formally interviewed once and consulted throughout the project to triangulate data as needed.

Observations and document review. As a method of understanding the cultural implications of the situation, participant observation provides a first hand view of the behaviors, language, and transmission of culture. The purpose of the observations must be understood prior to data collection and may be descriptive, focused, or selective in scope (Spradley, 1980). Our initial observations included lengthy observations by each researcher on different occasions. These observations were descriptive in nature whereby we looked broadly at the situation, focusing on all activity with equal interest. Separate observations facilitated discussion, comparison, and follow-up actions, with multiple perspectives creating a more credible judgment of what we observed. As the study progressed, the observations included more focus on particular instances based on suggestions by the participants. For example, we were invited to observe group interaction at rehearsals for competitions and during instructional activities that the faculty believed to be of interest to the study. These focused and selective observations added to the richness of the final descriptions as well as triangulated the data from other observations and participant interviews.

Finally, documents including school improvement plans, progress reports, and accreditation information were collected and used to provide further information to compare and triangulate with observation and interview data. Each researcher observed the nine selected programs during full class periods and made field notes on the programs. All interviews and focus groups were taped and transcribed, and field notes, logs, and documents compiled to provide a triangulated picture of the school.

Quantitative re-checking. We re-administered the SPOCQ instrument to students in the nine intensively studied programs. Then we compared the mean scores of these students to norms from the instrumentation sample. This was done to recheck that the current students' perceptions were as unique as those whose scores had led to this original inquiry.

Data Analyses

In an attempt to build a descriptive account of a situation, Wolcott (1994) suggested that analysis should involve a "progressive focusing" of the data. The researcher moves from figure to ground, examining the particulars of the data to form an account of the broader social context. Therefore, we coded data according to a three-step process in which individual data points were examined and synthesized into broader and more descriptive themes (Strauss & Corbin, 1990). In this method, the data are first examined for open or general codes that describe discrete events. The coding process begins, according to Strauss and Corbin, with making comparisons among discrete pieces of data. The data from all sources, interviews and observations, were examined to uncover the lived experiences of the participants. The goals of open coding are to categorize the data by investigating each item of information available and to determine what it represents. In this study, we asked students to describe their experiences in school and explain their reasons for selecting the careers center. Each experience became an open code because it described a distinct situational element. Data at this level of coding included discussions of specific instances in which teachers made a difference in the students' lives by being encouraging, challenging, strict but fair, and by treating each student with respect. The students also talked about how the careers center offered them opportunities not seen at their home school, including special training, encouraging environments, and a rich variety of choices.

Following the initial coding, we compared the open codes across participants and situations and collapsed them into axial codes that described categories of behavior. Data collected from all sources were consulted to corroborate these preliminary codes. Once the data were separated into the open codes, the next step entailed synthesizing the information into axial codes that added description to the data. Axial codes describe phenomena surrounding the events, actions—reactions, ideas, and other sub-categories detailed by the open codes. Each discrete piece of information relates to others, thus forming the data into a connective web of description. The context in which phenomena occur can be used to describe it, thus

resulting in more descriptive categories. Sometimes the conditions under which phenomena occur may intervene and exert positive or negative force on the phenomena; always influencing the actions and reactions within it. The action/reaction nature inherent in all phenomena, according to Strauss and Corbin (1990), exerts important influence on the axial coding. Questions that guide the coding process at this stage should center on identifying the actions that led to the phenomena being described, as well as the reactions and consequences of said actions and phenomena. For example, during open coding, the data revealed that the students perceived the curriculum and the environment to be positive contributors to their success. The teachers were specifically identified as being one aspect of both the curriculum and the environment, but were different enough from these concepts to warrant a separate category. Further analysis of the open codes revealed axial codes related to teachers and staff making a difference, an environment of personal caring, opportunity to form a new identity, and challenging, relevant curriculum that afforded students choices. These axial codes were then reviewed and compared by the researchers in order to make wider connections of phenomena. This analysis resulted in the final or selective codes.

The final coding phase involved re-assembling the data into a narrative discourse that described the factors influencing the participants and environment. According to Strauss and Corbin (1990), the researchers must identify for the reader the most salient points that have been uncovered in the data. We reassembled the categories and phenomena previously revealed by open and axial coding into selective codes that provided descriptive and analytical order to the data. Timelines and descriptions are one way to begin, but eventually the data must be discussed in terms of the patterns that the categories form. A single story line allows sub-categories to be compared and used to support the established core category. We described the data in terms of the truth revealed in them, not how they fit into other established theories. We identified three final or selective codes revealed in these data: Professionalism, Sense of Community, and Reason to Learn.

Findings

The use of narrative is a common technique in qualitative research and is frequently used as the vehicle for discussing the data. Narratives are formed by assembling codes and themes in an attempt to tell the story of the data collected. The discussion that follows is intended to both describe the three final themes revealed by providing examples and text from the data in a narrative form. Professionalism, Sense of Community and Reason to Learn emerged as central themes in the data analyses. In the following three sections, we describe these themes and illustrate how they defined this unique learning community.

Professionalism

Professionalism at the careers center was pervasive, existing in all aspects of the students' experiences and interactions. From the manner in which students were treated to the background of the instructors, and even the curriculum and instructional connections, professionalism defined students' experiences at the center. In all, seven areas existed that helped to completely define professionalism.

Background and instructor experience. First, as depicted in Table 2, 90% of the program managers (instructors) held Master's degrees, whereas nationally, only 41% of vocational public school high school teachers have completed a master's degree (U.S. Department of Education, 2003). In addition, *the program managers all had professional experience in the area in which they taught.* The most extreme example of this included Criminal Justice, in which the program manager and paraprofessional were both experienced police officers. Mr. F., the program manager had been an officer for over 25 years and his paraprofessional was a retired state police officer. In MedTech both the instructor, Ms. C. and her paraprofessional were registered nurses. Ms. C. told us "I worked at [the high school] as a school nurse for eight years prior to teaching here." In Welding, Mr. L. owned a tool and die business. He saw industry as so connected to his classroom that he explained, "I do not look at teaching as something that you want the students to learn...so they can possibly use it later. I teach them what I see in industry." Ms. S. in BST has worked in business, and Mr. B., the Early Education program manager, has worked in early childhood special education, which is an emphasis of the early education program and the preschool that exists in the careers center. Mr. E., the Natural Resources/Agri-Technology instructor, was a farmer and conservationist with wide experiences. His extensive background included degrees in Education and International Agriculture, and professional experiences that included working as an EMT, owning a backcountry tour company, and working in construction, agriculture, and conservation. This grounding as professionals in the field of study gave the instructors first hand knowledge of the profession and credibility with their students. It also afforded them respect from the business community with which their programs were connected. Fred², a senior in Criminal Justice said, "You can have book-taught people teaching, but [it's] not the same as with those who have done it and have real experience." As Alice from MedTech so aptly explained:

In [regular high] school it's like I have to be here, you know, and people here want to be here. I think it's true of the teachers too because –like Criminal Justice they are actual policemen so they have experience, and they know what they are talking about. I find teachers aren't really scientists they just have background and went to college to teach that. Ms. C, is a nurse.

We concluded that this trend of instructor background in industry helped them run their programs similar to the workplace, which we discuss next.

² Student names are pseudonyms

Professional instruction. A distinct trend emerged that we termed *professional instruction*. In many programs students assumed the role of apprentice, and teachers the roles of mentor or master, with students receiving the type of hands-on instruction one might see in the trades. The role of apprentice followed students as they were placed in the community for practical experience, whether as on-the-job-training (OJT), work experience, job shadowing, or as an actual apprentice. In the Early Education Program, Ella described a normal week, “We are in the [careers center] classroom one day a week and then we go out to our placements four days and we just learn how to get up in front of class and help with the students in the classroom.” With an apprentice, assessment is tied to performance and improvement is expected as the student acquires skills. When students took tests at the careers center, the tests covered performance skills and necessary knowledge in the career area. Upon passing these knowledge tests in Auto Diesel, students took on more responsibility and increasingly complicated work, such as working on a client’s car. More often than testing, instructors provided students with feedback concerning skills and progress. Criminal Justice held mock court, and students assumed roles of plaintiff, prosecutor, judge, defendant, jury, and police officer. IT students face networking and troubleshooting scenarios, even networking schools—including the schools—including the careers center. One BST student who was job shadowing at the local hospital said that due to her training she knew more than the hospital employees about computers (Lea). Also, BST students were placed into roles as office managers for specific program weeks and given jobs such as newsletter editor, inventory controller, or office monitor on a regular basis. Instructors ran their programs like businesses. Mr. R., the instructor of the Auto Diesel program, mentioned “I try to teach the program like they were employees in a shop with a boss.” Students were expected to behave professionally, and not only did they accept this responsibility, they rose to the challenge and viewed themselves as professionals. Students in Mr. R.’s class commented on having to sign in and out of the class, just like a business (Jake). In general the careers center’s programs were more work-like and less school-like. “It’s more about the work than a grade. It’s more about what you learn – I like that” (Jose, IT).

Table 2
Demographic Information on Sample Program Instructors

Program Manager	Years in Program	Education (Work Experience)	Sex/Age	Other Information
Auto Diesel Mr. R.	30 yrs	BA automotive, MA, teaching certificate, diesel certificate (auto repair-40 yrs)	Male 50s	Has worked for the center since it opened. Became certified in diesel after center's inability to hire a replacement.
BST Ms. S.	4 yrs	BA, MA, (real estate office; community college administration, 4 yrs; high school teacher, 2 yrs).	Female 30s	Student taught at the center. Completed a program similar to what she teaches as a high school student.
CNA Ms. H.	15 yrs	BA, MA, (business and night school teacher).	Female 40s	Taught Data Processing, then BST, then CNA at the center.
Criminal Justice Mr. F.	5 yrs	AS criminal justice, BA vocational education, MA criminal justice (County police officer, 23 yrs; instructional positions in law enforcement including driving instructor, range instructor, and training officer).	Male 50s	Currently works weekends as a police officer. Prior to developing the criminal justice program at the center, worked to certify students in CPR for the MedTech program and taught medical first responders for the center. Paraprofessional is a retired State Police Officer.
Early Education Mr. B.	18 yrs	BA, MA (Teacher, special education teacher, early education specialist).	Male 50s	Worked in early childhood special education prior to coming to the center, served as a member of the center's early education advisory committee.

Table 2 (continued)

(table continues)

Demographic Information on Sample Program Instructors

Program Manager	Years in Program	Education (Work Experience)	Sex/Age	Other Information
IT Mr. W.	6 yrs	AS environmental control technologies, BA vocational education, MA in Ed. Tech, certificate in computer repair, electrician's license. (heating & air conditioning, para-professional, community college instructor, electrician).	Male 30s	Was a student of the electrical tech instructor at the center, then worked for 6 yrs as a paraprofessional in this program after graduating from tech school. Hired 4 years later as a program instructor.
MedTech Ms. C.	5 yrs	RN, Bachelor of Applied Sciences in Nursing, Secondary and Vocational Teacher Certification, MA (RN school & hospital).	Female 30s	Substituted at center prior to accepting position. Finished teaching certificate after taking position. Para professional is an RN.
NRAT Mr. E.	18 yrs	BA, Agriculture, MA Education & Internat'l Agriculture (farmer, 20 yrs; construction; tool & die; EMT, 13 yrs; sales; owns salvage business & charter tours).	Male 40s	Involved in county gifted programs including year long environmental studies and agri-environmental wilderness expeditions.
Welding Mr. L.	3 yrs	AS, Welding cert, Tool making certificate, currently holds annual teaching authorization while working toward teaching certificate and BA (Owns tool & die shop creating original products, 15 yrs).	Male 40s	After years in business, decided he wanted to teach what he knows about industry to kids. Owns a successful business, yet chose education as a second career.

Prevalence of work experience. Consistent with recommendations by Velde and Cooper (2000), another distinct feature that contributed to the professionalism theme can be explained by the *prevalence of work experience* included in the center programs. Work experience opportunities were woven throughout the curriculum experience and came in a variety of options from OJT, where students would actually work and collect pay from a business related to their areas of study, to job shadowing, internships, and simple non-paid work experience. Criminal Justice, MedTech, BST, NRAT, and Early Education had OJT and work experience placements programs. “Second year [of the program] traditionally is to go on OJT to get a paying job in the health field” (Ms. C., MT instructor). Auto Diesel students, upon demonstrating basic competencies worked on customers’ vehicles, while Welding students accepted community assignments and commissions to work on in the center’s welding shop. Early Education students worked in the schools and in an on-site preschool. Because most of the students from all programs expressed the appeal of hands-on, relevant projects and work experience, we viewed these opportunities as key to the quality of education and the satisfaction of the students at the careers center.

Curriculum and projects related to career area. Because the programs have at their core a profession, *curriculum and projects related to the career area* were presented in a professional manner. Students learned skills that could often be used in the world of work prior to high school graduation. Several of the programs offered certification such as Certified Network Administrator, Microsoft Office® skill certification, CPR certification, nurses aide certification, and child care certification. Jon, a CNA student, stated this about his program, “It’s learning Novell® networking...at the end of the year we take an exam and get certified for it. It transfers credit to a lot of colleges.” Mr. W. admitted to having to take the exam himself, and said that it is tough with about 60% of his students passing it on the first try. (The careers center pays for the first exam, after that students can re-take it, but must pay the steep fee).

Many students received college credit for their work at the careers center, contributing to the professional environment. Further use of simulations and actual issues from the profession served to reinforce the professional nature of the career being studied. Each program had as a focus a profession and future job. This was very different than a traditional high school course (e.g., biology, English, government) in which the course of study is a topic. At the careers center students studied content in the applied professional context of a career that they found interesting and would likely pursue as a profession. Mr. R. from Auto Diesel commented, “I’ve had students become an automotive service worker right away, or go into car sales, and after a few years open their own business.” Jenna, an Early Education student saw her program as meaningful in this way, “It’s what I want to do with my future, heading me in the right direction and fits in with what I want to do.” Paulo, a CNA student, captured the essence of the investment of students at the careers center: “I care about what I’m doing here, because this is what I want to do.”

Students treated professionally. Both our interviews and observations clearly indicated that *students at this center were treated professionally*. Mr. R. managed Auto Diesel like a shop, Ms. S. ran BST as an office, putting students in professional roles. Students, in general functioned more like employees or members of a team than the typically subordinate students one might be more accustomed to seeing in a high school setting. Jose from the IT program described the teacher—student relationship, “It’s more of an employee to employer standpoint.” He went on later to explain that the program was “more like a job where people value you getting better at what *they* do.” Alice from MedTech mentioned having to clock in every day. Mr. R., the Auto Diesel instructor, said he doesn’t “treat them any different here than they would find it in the real world on the job. That’s what we’re all about, preparing them for that.” We observed students in NRAT following a schedule that they had developed based on their responsibilities to the program. After checking in, some monitored crops, others checked their animals, and still others worked on their conservation plans or FFA projects. The NRAT program ran smoothly and the students showed responsibility and self-direction. Welding students worked independently on very different projects, seeking help from their instructor when they needed assistance or guidance. Programs had job related skills as a primary focus, and in none of our observations did we see students raising their hands to talk, rather we saw conversations and mutual respect between staff and students, much as one would encounter in a professional setting.

Participation in career and technical student organizations. Involvement in CTE student organizations emerged as another key to professionalism. For example, National FFA Organization, Health Occupations Students of America (HOSA), Business Professionals of America (BPA), Skills USA®, and DECA, Inc. for students in marketing, management and entrepreneurship, are all professional organizations with young members who plan on entering the professions. As such, each organization elects officers, has regional, state, and national competitions in the field, recognizes and promotes excellence in up coming professionals. Over 70% of students who attend the careers center participated in CTE student organizations and Skills USA®, with many holding offices and becoming involved in competitions at regional, state, and national levels. These organizations with their skills competition functioned like sports teams in the academic CTE areas. Many of the organizations had their own banquet, and each February the center had a Skills USA® celebration to honor their participants and regional winners. During our time at the careers center, when students won in competitions, the principal publicly congratulated the students and articles appeared in the center newsletter and in the area newspapers. Students and adults openly discussed achievements in Skills USA® with pride, similar to what one might observe or hear in a traditional high school concerning student sports achievements. Program managers spent evenings and weekends without additional pay working with their student organizations. In doing so they continually treated their students as professionals, as business doesn’t always stop at 5pm. Ms. C. from MedTech encouraged one student to assume a leadership role.

This student went on to become the president of HOSA. Mr. W., IT instructor, encouraged one of his students, Joel, to become involved in both BPA and the state competition. Joel commented, "It's not a forced thing, it's a choice. Going to all these things keeps me not only moving, but still building on what I've learned at school." Students from NRAT, IT, and MedTech held offices and won state and national competitions.

Involvement in the CTE student organizations and Skills USA® provided students reason to learn by involving them in competition, teamwork, leadership, and recognition. It also connected them to others interested in the field and provided standards of excellent performance in a given area. Don, an NRAT student, recently took first place at the state FFA competition, "We [he and his cousin] won the state competition in agriculture sales and [now are] on to nationals...we are co-presidents of our chapter." As Ron from NRAT described, "The really huge thing for me is the youth club—FFA—how much the center youth clubs are part of the school here. The development you get from them, like FFA, their goals, community leadership, career success and personal growth. Those have been huge to me." When asked an open ended question describing the center a CNA student said "All the kids want to be here – youth clubs are [a] really big help – they are just something – they are a lot of fun and have engaging competitions, and I have responsibilities as an officer" (Will, CNA).

Formal business community connection. Finally, there existed a *formal connection with the business community*, consistent with Shumer's (2002) recommendation to engage the entire community to promote relevant, life long learning. Each program area has a business advisory board that served to help ensure that the content taught is reflective and responsive of the career area. These boards provide input concerning program content, school improvement, and program evaluation. They also serve as conduits to the community, often facilitating placements and experiences for students. Local businesses and government offices served as sites for a variety of student placements, with students involved with the local hospital, police departments, jails, prisons, courts, machine shops, small business offices, in house child care facilities, schools, daycares, and farms. Local business members regularly acted as professional resources and as speakers in the programs. During our observation of MedTech two medical residents were present to observe and assist with the exploration of pig lungs and hearts. Further probing led us to understand that they came not only to help, but also to learn, as working on fresh organs was a great opportunity for their continued education. For a week, future medical employees worked side by side with two young doctors. Criminal Justice used all aspects of employment possibilities when connecting with the community. "They [students] are in state police cars, sheriffs department cars, city police, they work at 911 dispatch, [and] district court" (Mr. F.).

Professionalism pervaded the atmosphere of the careers center and the students valued being treated professionally, having meaningful professional opportunities,

and relevant content and instructional strategies. Together, observations, review of center documents, and the words of the participants revealed a strong component of professionalism. The aspect of professionalism is likely missing from traditional high school settings and may provide insight concerning why these students rated the careers center so highly.

Sense of Community

Not surprisingly, sense of community emerged from our data as the second major theme. The literature pointed toward this element as one key to successful career and technical education (e.g., Shumer, 2002; Solberg et al., 2002). Despite the fact that students were bussed to the careers center from several different high schools, there existed a clear cohesiveness at the center where students belonged and adults cared and showed genuine interest in the students. The principal greeted students as they arrived on most days and knew most of his 800 students by name. He stated “We [the administrators] spend a lot of time at the front doors on a daily basis, just greeting the kids as they come in the building. I guess because of that you end up developing some pretty positive relationships with the kids” (Principal, Mr. H.). “The principal, Mr. H., he actually knows my name, he is always in the programs, like this would never happen at my high school” (Jim, focus group). Mr. H. said of his role at the center that he viewed himself as the coach of the team:

My job is to run down that path in making sure that we’re doing things that are going to make education better for students, and so when you bring those things across the table, you’re the coach who tries to get everybody on the same team to believe in those concepts, to believe in those philosophies. That’s my job as a coach—to encourage, to try things.

This careers center had an environment in which students could both belong and succeed. Sense of community involved five distinctly related areas.

Personal caring about students. Adults repeatedly demonstrated that they *personally cared about the students*. Support personnel worked to help students become successful, and they included special education faculty, counselors, and a coordinator responsible for at-risk students who were admitted to the careers center as freshmen and sophomores. These students were identified as at-risk of dropping out of school, and early admission to the center had been designed as an intervention to keep them in school. This coordinator explained: “It’s not that I want to be their success—I just want to show them that there can be something different, to help them find their ways.” A student from the at-risk program stated, “Unlike high school, the teachers here actually care about what you do with your life.”

Mr. E, from NRAT, described how he felt about his students, “They are the greatest people on Earth. No joking about that. They are beautiful people.” Students reported this aspect of community in their interviews indicating repeatedly that they believed that the teachers, administrators, and paraprofessionals cared about them as

people and as students. Harmony explained how Mr. E. cared about his students, “Mr. E. is the type of person who can just pick things up – knows if you’re having a bad day and will come up to you and talk to you and will like tell some funny jokes and it makes you feel better.” Alice, described her Early Education instructor, Mr. B. “He’s really encouraging and happy and enthusiastic. He’s like a cheerleader to me, convincing me that I can do it!”

In one NRAT observation, to an outsider, it appeared that some students were not engaged. It was a Monday morning, these students seemed sullen and standing off to the side while others worked on obtaining a sheep’s vital signs. Both before class and during class, Mr. E. quietly checked in with the students. While they talked one girl appeared on the brink of tears. At break, Mr. E. explained that two of his best students had had rough weekends. One had broken up with her boyfriend, and “she is really hurting.” Another, lost the election for state FFA president by two votes—“a really tough blow, as he is just a super kid.” He knew all this before break. He showed deep concern for their development as people and individuals who would grow into productive adults. Subsequent observations and student interviews confirmed that Mr. E. knew his students and they trusted him. Rather than suggest that these seemingly off task student “get back to work,” he had learned about their issues and given them some breathing room on a Monday.

Kristy, a Criminal Justice student, explained the depth of caring from Mr. F.: “I went for Summer Institute, and got in! Mr. F. took me out in the hall and said, ‘I’m so proud of you—this is awesome!’ He was more excited than my parents. They really care about you here.” Similarly, Latoya described the caring of Ms. C. from MedTech, “Ms. C. pushes everyone and she is so fun. She is one of those people... when we were doing the job interviews, some kids weren’t dressed properly as she wanted them to – so she changed out of her outfit and let the students wear that to their job interviews. Nothing gets in her way. She is simply a great teacher.”

In observing IT, the following description was recorded:

Students are engaged in a review of content for the certification test. One student complains about always getting the easy questions, Mr. W. responds with a comment about the student’s obvious brilliance. He asks students to listen carefully, and they respond. He strikes me as a “kid person,” easy going, one who obviously likes the students and whom the students like in return. His demeanor is outgoing, friendly, reinforcing, disarming. He has a great smile and an engaging style. When the student who complained about always getting the easy questions misses a review question Mr. W. responds with a good natured “see you learned something today.” The student responds with a warm and wide grin.

Many instances existed where adults focused not on the class or curriculum, but on the individual needs of their students. Ella praised Mr. B. for putting in extra work with students when they fell behind and for even staying after class to help. The

bottom line was that the adults at the center really knew the students. This created an incredible sense of community and belonging from the perspectives of the students, “The teachers are more friendly at [the careers center]... they have time to help you. If you are having difficulty, they help you out and try to get things better. They know each individual student and where they are at” (Kelly, BST). Another BST student, who had been in an alternative high school and who had seen considerable trouble in school, explained, “The teachers are really good to you. They treat you like you are the highest person in the class. They make you feel really good about yourself and how you get stuff done. I love waking up and knowing that I get to come here. In my other school they thought I was un-capable academically, I hated it there. Here they care” (Lea).

Teachers make a difference in students’ lives. Perhaps because they cared so deeply about their students, we found that *the teachers at the careers center made a difference in the lives of their students*, creating a strong sense of community. As one student put it,

My teachers and advisors—they’ve all had big impacts on my family’s life, and especially my life; I know though there’ll be people that I’ll carry with me throughout my life and will always be a part of me and who I am—that’s one of the best things about my program. (Ron, NRAT)

Mr. E, from NRAT, discussed with concern and with pride one particularly troubling student,

We’d referred him for counseling (due to his anger and aggression toward women). Mr. P. [the farm manager], awarded him last night with the “work horse of the year” award, which is a special award for someone who works very, very, hard in the land lab, and we pick only one. I’ve never seen a kid cry any harder; those kinds of things do affect your life.

At the careers center, students attended their programs for 2.5 hours, 5 days a week, which allowed the teachers time to know their students, especially since most students remained in the same program for 2 years. Additionally, with the exception of NRAT and Early Education, class sizes were well below the national average for secondary schools of 24 students (NECS, 2003), with some programs having as few as 10 students, and most averaging about 18 students per section. Low student to teacher ratio and extended contact time facilitated instructors knowing their students. Several programs (i.e., Early Education, BST, Criminal Justice, MedTech) had a more traditional first year followed by a second year of almost all on the job training, job shadowing, or dual enrollment in college courses. Teachers had professional content expertise and they acted as mentors helping students and sharing their experiences. The Criminal Justice program and Welding program were both excellent examples of instructors sharing up to date work experiences with students in their classes. Kristy, from Criminal Justice, was interested in canine law enforcement, so Mr. F. placed her with the canine officer and provided her with unlimited opportunities to focus her studies in this area. Will, from IT, already knew

the curriculum, so Mr. W. brought this to the attention of Mr. H., the principal, and they purchased a several thousand dollars of new software for Will to use and continue his learning. Will took first place in the national competition in his area. Lea, who had been failing regular high school and who now had college credits and A's in her BST program explained:

If you have hard work – they'll take you through every step and tell you – you can do this. You are capable of doing this – you are smart and good at this – you can do everything you put your mind to. They just tell you that you are able to do it. I think it's a lot easier when someone's there telling you that you can do it.

Teachers showed enthusiasm for teaching, and this enthusiasm served to engage their students. Teachers connected with their students by taking an interest in their lives and learning. Mr. W. would exclaim “YOU ARE AMAZING!” to his students as they slogged through the difficult materials preparing for their A+ certification exam in computer networking. His enthusiasm and belief in them helped them want to learn even the most tedious material. Mr. E. began his morning class with “Good morning superstars!” Even the sleepest senior could be seen smiling slightly in reaction to his teacher's greeting. Many students explained how their instructor was “easy to talk to.” Ernie, a Welding student, described Mr. L. as having “No negative comments – he's a very positive person and makes sure we're happy and are learning.” Adults believed they were there to help their students learn, grow as professionals, and develop as people and they acted accordingly. “The teachers here will spend a lot of time with you and explain if you have trouble” (Rory, IT). Ron from NRAT described the manner in which Mr. E. touched his life:

Mr. E. is a very passionate person—he's very loving, open and caring. A lot of times he'll start off class with a little motivational—to make you think or ponder that—what's really the meaning of life—things like that. Maybe a lot of people don't realize how much that does maybe spark someone's imagination and make somebody think, Man, what can I do with my life—and what's really the meaning of life, making you really care about life and not just go through it as a chore. Mr. E. gives motivation talks—thinks about life and challenges me to make sure I'm making the best of it—even if I'm only in high school and won't have a huge impact on the entire world. I'm not going to be a Ghandi while I'm in high school—but it makes me think about what I want to do with my life. Do I want to be well known and someone people look up to? Or do I want to be someone who makes little impacts on a lot of people here and there?

School as home and family. *School as home and family* defined adult care, the concern with students' futures, and the respect with which students were treated. Though we didn't ask about whether the center was like a family, one-third of the students and half of the adults interviewed referred to the people at the center as being like a family. We confirmed this finding by asking students in the focus group

if it was true that the center was like a family. All 7 focus groups agreed with this statement. "It is like a family here – and we're such good friends – even from the beginning – no rivalries except we joke around" (Paulo, CNA). Crystal from Criminal Justice explained,

The teachers here are wonderful and have a personal relationship with everyone in the classroom—they help us out with anything—if we didn't have money, they'd buy us lunch—they are just great. We talk about everything in that class. And if we ever have a problem, they'd know when you walked in the class and they will pull you aside and talk to you. It is like a family.

Mr. E. from NRAT explained the atmosphere in his program:

Well, we tell them the very first day they come into the program that this is not a classroom. If they're coming to take a class, they've come to the wrong place. If they want to come and be part of our family, assume some ownership—this is not my land lab—it's not my bosses' land lab—it's our land lab—and it is here for them to use, but not abuse. We talk about how we support each other. We want this to be a family atmosphere understanding that there are going to be differences of opinion, and I think that part of the family infrastructure should be humor. We try to have a lot of fun.

Like all families or communities, there was an interesting interconnectedness of the people at the center. This interconnectedness and atmosphere of family created a group of people who were vested in the success of the center and who believed in its mission. They came to the center for various reasons, but they stayed because they belonged and wanted to be part of the overall center. The Director of Career Education described the overall philosophy of the staff, "We give a lot of kids that direction towards a career and see them follow through. When you walk into a business and the bank manager or body shop manager or the plant owner started here – that's a good feeling" (Mr. B., Director). Some of the instructors had been students at the center, had worked there in other capacities, or completed their student teaching at the center. Mr. W. was a student, a program assistant, then a program manager. Ms. S., the BST instructor, completed her student teaching at the careers center. After graduation she worked for several years in her profession waiting for an opening in her program. Ms. H. from CNA had taught in three other programs at the center. Mr. F. from Criminal Justice developed a new program (based on student requests) after several years of certifying students in other programs in CPR. It was very clear, that when a person—adult or student—became involved with the center, they became invested in the center. "It tends to be like a family where people really pull together for others" (Mr. S., Assistant Principal). During our visitations, there were staff meetings, staff parties, birthday celebrations, and student celebrations where most staff were involved. Ms. K., the counselor, captured the staff interconnectedness and family atmosphere:

We have breakfast every other Friday, and most staff come and talk about the weather, the students, our lives. We do Christmas parties, golf outings, we do things together. The uniqueness of not really coming from academia—they come from the real world of work—they tend to kick back a little more, to be a little less stressed and willing to help each other. If I said I need 5 people to help me go cut wood, I'd have 8 who wanted to help. I guarantee that that wouldn't happen at any of the 3 high schools I've worked at.

We concluded that this family atmosphere contributed to the low turnover in staff and the quality of applicants when a position at the center opened.

New identity. Though not reported by the majority of students, for some students with previous problems, attending the careers center afforded them the opportunity to develop a *new identity*. For example, Will, a CNA student remarked, "You tend to be able to establish a whole new identity at the careers center that you don't have to worry about anything that you've done at the home school because here it is a fresh start on things." Coming to the center was a chance to start over, to develop a new academic self in the context of a program of similar interest. Twenty-five percent of our interviewees said that they had higher grades at the center than at their high schools. Four students explicitly discussed how attending the center had freed them of stereotypes concerning the type of student they were at their high school, thus allowing them to achieve at higher levels in their center programs. Interaction with peers from other schools who shared a career interest helped them to improve their performance, and perhaps their chance of success. Eight students, the counselor, the at-risk coordinator, two teachers, and two administrators reported this phenomenon, and for some this was an important aspect of their involvement at the center.

Safe learning environment. We described the *center as a safe learning environment*, one where staff allowed mistakes, encouraged responsibility, and developed a safety net for individuals who were at risk. This environment existed as a positive aspect of the community. For example, instead of suspending a student for excessive absences (as was high school policy), the counselor at the center would find the absent student and investigate causes of the absences. Even the most truant students could use an established appeal process once their issues were identified. If students did miss an excessive amount of class time, they were not punished with suspension or expulsion, "Penalty is loss of credit – not loss of privilege to come here" (Mr. S., Assistant Principal). Rather than administering discipline, the Assistant Principal described a more student-centered focus whereby he helped students identify and solve problems. A special program existed for ninth and tenth graders who were at-risk of failing or leaving high school, whereby they could be admitted to the careers center earlier than most students who began attending during their junior year. Special education staff helped ensure success of special needs students who were in programs at the center.

The practice of allowing students to make mistakes extended into class time, often facilitating additional learning. Jamie, an Early Education student, described her teacher, Mr. B. as someone who expected mistakes, “He’ll let you do what you want to do—he will let you be creative—he doesn’t expect everything to be perfect, like little kids aren’t perfect.” In Welding and Auto Diesel, when we observed mistakes, the instructors used the mistake as a teachable moment, asking questions, probing, reassuring, and suggesting ways to improve. In the preschool, when activities didn’t work with the children, instructors conferenced with students to plan adjustments. We observed teachers encouraging students to take risks, try new things, step out of the box, then commending them for trying. In IT not all students passed the A+ certification exam, but all worked toward that as a goal, with encouragement, and humor evident as they reviewed and studied. Several classes used Quiz Bowl or Jeopardy and a Smart Board®, a technologically interactive whiteboard, for review. Students could respond, see how many chose what answer, but not have to reveal if they were right or wrong. In this manner, we observed all students engaged in the reviews, no risk of being publicly wrong, and a high percentage of students enjoying the activity. Several students commented that these strategies made learning what they had to know easier to learn.

Finally, there existed a safety net even for students who might have chosen a program that didn’t fit their style or interest. Students could change programs if they determined that their original choice did not meet their career goals. Staff recognized that learning what one does not want to do for a career was an important step in making informed career decisions. Four students whom we interviewed had transferred to other programs, and they indicated decidedly more satisfaction with their second program choice.

Reason to Learn

The final theme resulting from our data analyses was *reason to learn*. The learning experiences had purpose for the students and included various aspects of rigor, relevance, and meaningful choices. Students learned in an enjoyable atmosphere where they learned content in the context of a profession they found interesting. Consistent with work by Cooksey and Athanasou (2001) and Velde and Cooper (2000), learning with purpose seemed to be a key to the positive attitudes of the students. We describe reason to learn using six categories to fully define this theme.

Appropriate rigor, hand-on and academic. In the programs there existed *appropriate rigor with hands-on and academic components*. Students could elect college credit, as Ms. S. described, “We have articulation credit with several colleges – whatever is finished here, we have agreements with colleges so they know the curriculum has been covered...that is equivalent to one of their college courses – they get that college credit.” BST students could leave [the careers center] with up to 25 college credits. There was also an option in BST for credit by examination, “[We]

review and take tests every week. You can get articulation credit for that” (Ann, BST). A second BST student mentioned graduating with \$1,000 in articulated credits (Craig, BST). Students could be dually enrolled at the careers center, and at the community college. Fred, a student in Criminal Justice, explained how he spent time at both the careers center and at the community college taking courses as part of his Criminal Justice Program, earning a total of nine college credits during his program. MedTech students could receive college credit for physiology that they studied at the center, as the curriculum was comparable.

Each program at the careers center involved hands-on learning, which was a theme central to the students we interviewed, and a theme central in the CTE literature (Clifford & Wilson, 2002; Dormody, 1992; Sutphin & Newsom-Steward, 1995). Most (over 90% of students we interviewed) preferred learning by doing, rather than learning by reading or lecture, and explained that the center emphasized hands-on learning. Fred, from Criminal Justice typified this attitude, “I definitely prefer the hands-on way to learn. You can talk to me about it all you want, but until I get there and actually do it, it doesn’t stick as well.” These students also expressed the clear connection with their work and its relevance to their career interests. An observation in MedTech recorded:

Students dig into the dissection, all wear gloves and aprons. They use cafeteria trays and joke about it. The trays are wrapped in plastic. No one is off task, including Ms. C. She moves from table to table marveling at what her students are discovering. They identify the extraneous parts such as the tongue, epiglottis, and other anatomical parts that happen to come with the lungs. Connective tissue, diaphragm...then laugh about their use of the Hospitality and Tourism program trays! They enthusiastically take turns inflating the lungs using straws and their own breath.

When questioned about whether the program or teacher challenged them over 90% said yes, and many explained that they enjoyed the challenge, because at the center learning was fun and relevant, so working hard was worth it. As Jason from MedTech explained, “the center will pay for college credit if you keep a C or higher, that was a real challenge for me, I had not taken college classes and working hard I got a B, and I needed it for college.” Paulo from CNA said, “We have great challenge—we learn something new every single day. Things I need to know—things I want to know. Sometimes Mr. W. will mess up a computer, it can be really frustrating, but it is real.”

Relevant and real-world learning experiences. Students consistently reported experiencing *relevant and real world learning activities*. As suggested by Chappell (2003), these activities were advanced and connected to the fields of study. A wide range of these activities existed and included certification for Microsoft applications in BST, A+ certification in IT, CPR certification in MedTech, Criminal Justice and Early Education. As previously described, students experienced real-world learning through placements in the professions. Such placements included job

shadowing, on the job training, and apprenticeships. Professional guests, as in the doctors who assisted with the fresh pig heart and lung inquiry in MedTech, or members of the Bar association who spoke with the Criminal Justice students, were common as most programs used members of their advisory boards as speakers in their programs. Mark, a student in the Welding program commented, "If we burn our hand welding, we're sent to MedTech for treatment; we share and help each other from different programs." In Welding, the local Chamber of Commerce had contracted with the students in the program to make sign post snowflakes for the community, and students in Auto Diesel worked on clients' cars. In NRAT, students operated a farm, raised and showed animals, developed conservation plans, and conducted focused studies in individual areas of interest. Early Education students worked in childcare facilities, whereas Criminal Justice students were involved in mock trials and field placement rotations. Students valued and found relevant the types of real-world learning offered at the careers center. Mr. B. from Early Education suggested that we visit electrical technology (a program not included in our sample) to see what the non-reading "low ability" kids had done in lieu of curriculum that was too difficult for them. We visited the program and learned that these students had created a solar car.

Meaningful choices. Both instructors and students discussed the variety of *meaningful choices* for students that existed within the framework of the center and programs at the center. First was the ability of the students to select a program that matched their needs. For students who chose programs that didn't meet their needs or expectations, mid-year moves were allowed to other, more suitable programs. Brit enrolled too late to attend the Early Education program so she moved to BST. Another student changed from Early Education to MedTech. Paulo began in IT but switched to CNA because he wanted to focus more on computers. Second, students made important curricular choices. Students selected their projects and field placements, whether to take college credits, whether to work in groups, and what area of focus to pursue in their chosen program of study. For example, a student in BST mentioned "You can become certified in our class as a Microsoft user specialist; there's a bunch you can do – I can use that in college and my future job so everything we do in there is not wasted" (Ann, BST). Even in the classroom with assignments students had great freedom "They [students] don't have to do the projects in order...one day they may want to work on the brake, another a timing belt. We have the curriculum but they can jump around" (Mr. H. Auto Diesel para). Students in NRAT chose areas of specialty after learning of over 200 possible careers from Mr., E. who explained,

I encourage them to be entrepreneurs, look at something they can do and try to formulate their own business, and we talk about that to maybe invest a little bit of their skills and dreams into something that might be profitable for them or give them a little self-esteem in the end.

Welding students designed final products based on their individual interests and needs, and they also chose what types of welding on which to focus. Criminal Justice offered a variety of choices for personal study preparing some students to work as corrections officers, others to work as police officers, and still others as attorneys. Staff at the careers center encouraged choices that would help students learn and develop, and students knew about their choices. Students consistently expressed the importance they found in being offered a variety of meaningful choices.

Learning is fun here. Renzulli (1994) suggested that, “Learning is most effective when students enjoy what they are doing. Therefore, learning experiences should be constructed with as much concern for enjoyment as for other goals” (p. 39). We found at the center that students suggested *learning is fun*—possibly because the students and the instructors shared common interests. Jason, from MedTech explained, “I think it is a lot more enjoyable to learn [here] because everyone around you enjoys what they’re doing and wants to be here as well.” On six separate occasions we observed students returning to class early from break to continue their work. I enjoy coming here – it’s fun. Hanging around with friends, working, and doing jobs” (Don, Auto Diesel). In all, 50 of 54 students interviewed referred to fun or enjoyment as part of their experience at the center. Four individual seniors explained that while they had skipped regular high school for senior skip day, they didn’t skip their center program. Technology was used to make the mundane more enjoyable, “We get a brand new tractor every year that’s about a 130hp tractor so it’s state of the art and very nice to have that...we just purchased an ultrasound machine for use on livestock,” bragged NRAT instructor, Mr. E. This high tech world of the center created a sense of enjoyment. In the preschool, which focused on disabled students, instructors and students used state of the art voice enhancement technology; in Welding and Auto Diesel students learned using cutting edge equipment; and in the classrooms instructors taught using instructional technology such as computers, smart boards, LCD projectors, and the latest software. The atmosphere was relaxed, but the curriculum challenging, creating a fun exchange among students and staff. Humor was observed in every class, with informal exchanges between instructor and their students. “We [students and teachers] joke around with each other and get along and talk to each other” (Alan, CNA). Mr. E., the instructor from NRAT, joked around with students and his paraprofessional, “We try to have a lot of fun. Mr. P. and I pick on each other a lot in class...we probably have too much fun.” Alice from MedTech explained, “I never thought I’d want to dissect a heart, but they made it fun and they made it interesting and made me want to do it. It was really cool.”

Here for special training. Students reported being at the careers center for *special training*. Most had an intense interest in the field of study, though some used the center experience to verify whether they were indeed interested in the area. Most students planned to enter the profession they studied at the center and saw great importance in their early training. Will from CNA said, “All my training here has

paid off, I could walk right in and get a job, and I'm ahead of the college game as well." Field experiences related to the profession and helped students understand and apply what they learned. In Criminal Justice, there were rotations, and all students learned about all aspects of the criminal justice field. In doing so, Mr. F. explained they could better choose an area of specialty while still understanding the other areas of criminal justice, "They learn the entire process – the paperwork, citations, the dangers involved. They go through four different work locations – they spend forty eight hours in each." The classes related to the professional field of study. "Everything is connected to the real world – to their actual job or to their family" (Ms. C., MedTech). Students with a specific focus received training in that area of interest, "Students who want to go into the dental field, once a week a trained dental hygienist comes and trains them and teaches them more about the dental field" (Latoya, MedTech). Additionally, many students commented about using what they learned in their careers center program in other ways. "I can use the knowledge I've learned in computers in my career field and for school projects" (Brit, BST).

Here for personal reasons. Interestingly, some students reported attending the center, not for the career program, but for *personal reasons*. Such reasons were reported by fewer than 15% of the students interviewed and included friends, family, and/or convenience. Craig, a BST student stated he just needed "To get away from high school for a while." This idea of the center as something different from the normal high school routine was common among students who came for personal reasons. "It's good to get away from your home school and all the little dramas that go on in high school" (Tammy, MedTech). Others had slightly more genuine reasoning, "My parents thought it would be a good idea to get out of [my town] and meet new people and do different things" (Harmony, NRAT). Others just knew people involved with the center and attended for that reason. "The instructor, his son is a friend of mine so I'd go over to his house when I was younger, and I knew [the instructor] and got involved with [the] Police Explorers for two years before I was at the center" (Fred, Criminal Justice). Regardless of their reasoning, the students who reported being at the center for personal reasons spoke positively about their experiences.

Quantitative Confirmation

Results from the re-administration of the SPOCQ (Gentry & Owen, in press) to students in the nine programs intensively studied confirm the unusually high assessments and reports from students and staff concerning education at the center. Mean scores by program on Appeal, Challenge, Choice, Meaningfulness and Self-Efficacy revealed practically meaningful differences when compared to the normative sample for this instrument—exactly the same phenomenon that lead to this investigation. These comparative scores are shown in Table 3. In every program for every construct, means were higher than the normative means. Further, 31 of the 45 means in the table exceed the norm by more than .5 standard deviations with 6 of

these means exceeding the norm by more than 1 standard deviation. These numeric data help to explain and confirm the seemingly glowing reports given by the students and staff we interviewed. Students who attended this center had positive perceptions of their experiences as indicated by their comments and by their scores on the SPCOQ.

Discussion and Implications

Knowledge gained here is particularly relevant as integrating academic and occupational learning has become a core principal of school-to-work and CTE reforms affecting secondary education (Carl Perkins Amendments of 1998; School-to-work Opportunities Act of 1994). Emphasis on integration of academics and applied skills is an effective response to the increasingly technical nature of many jobs, which require a workforce comprised of skilled problem solvers, with strong applied academic preparation (Resnick & Wirt, 1996; Stasz, Kaganoff, & Eden, 1994; Stern, Finkelstein, Stone, Latting, & Dornsife, 1994). Further, in light of recent work by Plank (2002), in which he found that taking both CTE and academic courses reduced students' likelihood of dropping out of school, these findings reinforce the importance of CTE courses for secondary students. Students who attended this center found it stimulating, enjoyable and valuable. They belonged to a safe community of learners who shared interests, with adults who cared personally about them. The data tell the story, however several things emerge from it worthy of discussion and consideration. We have investigated a school that seems to be doing quite a bit right from the perspectives of its students. Qualitatively, the students tell a story of their collective experience at the center, and quantitatively these students rate their programs much higher than typical students rate their classes around the country. We are not experts in career and technical education, and happened on this site as a result of some instrument development work. After considerable time on site listening and observing, followed by transcribing, reading, discussing, and analyzing data, we believe we have come to understand some of the things that distinguish this site. We wonder what general secondary educators might be able to learn from a place such as this careers center that would help them connect to their students in a similar way. We wonder if these results typify CTE in general.

Table 3

Mean and Standard Deviation Scores on Constructs Compared to Norms for Sample Program.

Program	Appeal	Challenge	Choice	Meaning	Self-Efficacy
Auto Dsl (n = 09)	<u>3.87</u> (.30)	<u>4.06</u> (.50)	4.17 (.32)	<u>4.09</u> (.29)	<u>4.09</u> (.41)
BST (n = 45)	3.35 (.65)	3.51 (.64)	3.59 (.53)	3.63 (.43)	<u>3.80</u> (.50)
CNA (n = 14)	3.21 (.69)	3.69 (.51)	3.45 (.48)	3.54 (.40)	3.50 (.42)
CrmJustice (n = 43)	4.22 (.43)	<u>4.12</u> (.48)	4.25 (.41)	4.23 (.35)	4.30 (.41)
Early Ed. (n = 63)	<u>3.81</u> (.54)	<u>3.84</u> (.51)	<u>4.10</u> (.42)	<u>3.98</u> (.34)	<u>3.95</u> (.45)
IT (n = 21)	<u>3.63</u> (.48)	<u>3.78</u> (.60)	3.49 (.47)	<u>3.79</u> (.40)	<u>3.99</u> (.47)
MedTech (n = 46)	<u>3.61</u> (.60)	3.64 (.53)	3.73 (.53)	3.71 (.45)	3.59 (.59)
NRAT (n = 58)	<u>3.68</u> (.49)	<u>3.92</u> (.34)	4.22 (.38)	<u>3.95</u> (.34)	<u>3.85</u> (.49)
Welding (n = 23)	<u>3.68</u> (.54)	<u>4.00</u> (.65)	<u>3.97</u> (.53)	<u>3.90</u> (.50)	<u>3.93</u> (.63)
Sample Norms (n = 7265)	3.06 (.83)	3.41 (.72)	3.43 (.69)	3.43 (.70)	3.43 (.71)

Note. Underlined means exceed the norm scores by more than .5 standard deviations. Bolded means exceed the norm scores by more than 1 standard deviation.

First, the approaches to education used at this CTE center may provide others in CTE and general secondary education with an effective model for reaching more students and developing their potentials. Several key things seemed to distinguish this center from more traditional high school settings:

1. Students in this setting experienced content from a relevant (to them) career, and real-world perspective. They studied with others who were interested in a similar topic.
2. Students received professional treatment and respect from adults at the center, where learning was focused, but informal. Adults gave students responsibility and treated them with respect and care. Students responded in kind.

3. Resources, speakers, and experiences outside of the classroom were common and viewed by all participants as integral to the programs of study.
4. Academics were balanced with hands-on learning, which had great appeal to the students we studied. Further, content was studied in the context of interesting career possibilities, and the programs offered meaningful choices to students.
5. Instructors and adults knew their students, showed genuine interest in them as people and worked to solve problems. There was a distinct absence of a traditional teacher as person with power, and a distinct presence of a program manager who works with young adults as a mentor-type guide.
6. The staff and students at the center had access to and used high tech equipment. Both faculty and students appreciated the facility, the technology, and equipment that the facility offered to support learning.
7. Faculty seemed unusually qualified and skilled. They had professional and educational expertise. All but one teacher at the center had attained a master's degree, whereas nationally, only 42% of teachers have attained a master's degree (NCES, 2003).
8. Finally, students spent large blocks of time in their programs—at least 2.5 hours per day for 2 years. Programs consisted of classroom, lab, and field experiences.

Some might argue that current high school schedules could not accommodate these features; however, we must ask about the purpose of high schools. With recent increases in high school drop out rates, if the purpose of schools is to educate and prepare students for productive citizenry, then changes and methods that help educators do this should be seriously considered (Greene, 2002). These eight things could be integrated into the culture of high schools with some thoughtful planning and deliberate actions.

Second, with NCLB legislation, the back to basics movement, suggested cuts in educational funding for non-traditional programs that have traditionally helped to fund career and technical education, and considering the findings of this study, one must ask if less can serve more students well. Preparing students for life in the 21st century must extend beyond basic skills, beyond reading and math, beyond a traditional high school education that generally prepares students for college. Current educational trends seem to have forgotten students who have career and technical interests and talents, or students who may be more successful learning by doing in an applied, real-world context. Further, if the purpose of schooling is to prepare citizens for productive lives in a democracy, then schooling must relevantly reach beyond simple academics and basics. Some researchers argue that employers require that their workers not only have cognitive skills in critical thinking, problem solving, and

conflict negotiation, but high-level technical and basic academic skills, to address demands for management, production and global competition (Appelbaum & Berg, 1999; Schmidt, 2000). As schools (and their students) are held accountable to single, external assessments, more and more students who may be spatial and visual learners, are being pushed away from school instead of developed and nurtured (Gohm, Humphreys, & Yao, 1998; Shea, Lubinski, & Benbow, 2001). To truly leave no children behind there must be a variety of methods and programs to meet their very diverse learning styles and interests and to fully develop their potentials.

Third, for some students, like those we studied, meaningful learning and focused career development connect them to school and provide them with exactly the type of education they crave. This learning is powerful, concrete, and students can see how they will use it; thus they engage with personal commitment. According to Taylor (2001), worked-based learning not only benefits the learners, but also the employers who participate in such programs, by providing personal, educational, and career-related opportunities. Students increase self-confidence, motivation, and resilience by engaging in their own learning, participating in real-life activities at the worksite, working independently or with others to solve problems, and applying academic and technical knowledge in the workplace (Luft, 1999; Taylor, 2001). It would be interesting to know if methods used at the center would improve how students in regular secondary settings view their school experiences. Our analyses of our secondary education data found that, with the exception of this center, the other 25 sites were not outstanding from the perspectives of their students. Might they improve if they integrated some of the aforementioned features that existed at the careers center? We believe it is worth a closer look.

Limitations and Future Research Needs

This study has obvious limitations, the most glaring that it is a study of only one site; however it is not the purpose of qualitative research to generalize, but rather to provide context and description that the reader can apply to various settings as seemingly appropriate. Despite claims of uniform and quality teaching (Athanasou & Petoumenos, 1998) and positive student attitudes (Womble, Jones, & Ruff, 1995) in CTE, we do not know whether all career technical settings would yield similar results or whether we simply found an exceptional center. Further, despite efforts to learn what was wrong with the center, we found no students from our sample or in our focus groups who expressed dissatisfaction. Thus, these results may seem too good to be true; however, we selected this site based on extraordinary student responses. We ensured a representative sample by including at risk students and we used focus groups to confirm our results. Six of our sample students were selected and interviewed over the objections of their teachers who expressed concern that these students might not tell us positive things about their center experience, yet they did. We reached data saturation and the story remained consistent. It is also a study of a careers center in a rural area, thus we do not know if it would apply to other

ecologies such as urban or suburban areas. Students who chose to attend the center may differ in their attitudes and make-up from students in general education settings. They may tend to prefer hands-on learning whereas other students may not. This is simply a study of one school and its students, staff and programs.

More work concerning the difference in student perceptions between such settings and general high school setting is warranted. More study about the nature of career and technical education and student attitudes in general, would provide insights and facilitate understanding of how students perceive these experiences. Further research that addresses CTE integrated into high schools, part time CTE centers, and full time CTE centers at the secondary level would provide knowledge of how different delivery systems work. More work needs to be done on the role of CTE in the development of gifts and talents as well as career aspirations of the students it serves. Finally, it seems that like us, others from outside of the CTE field need to take an interest and learn about this important option for delivering effective educational services to secondary students across the country.

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