

Indiana Secondary CTE Instructors' Perceptions of Program Expectations, Modifications, Accommodations, and Postsecondary Outcomes for Students with Disabilities

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Abstract

This study explored potential influences that students' educational label, behavior, and learning characteristics have on program expectations, modifications, accommodations, and postsecondary outcomes as perceived by Indiana secondary career and technical education (CTE) instructors. This is a replication study of research conducted with Pennsylvania CTE instructors (see Harvey & Pellock, 2003). Participants were asked to rate program elements using a 5-point Likert-type scale after reviewing two specified student vignettes; one describing a non-disabled student and the second describing a student with a specified disability. Ten sample selected CTE centers in Indiana (n=147) participated in the study. Results point to significant differences in Indiana CTE instructors' perceptions of program expectations, modifications, accommodations and postsecondary youth outcomes by disability classification. Recommendations concerning future research and training are discussed.

The reality of today's jobs and demand for labor is complex and continually changing. Gordon (2000) concluded that the labor force calls for a more educated and better skilled worker to meet the demands created by globalization, technology, and competitiveness in the marketplace. Current labor skills required by employers create real challenges for jobseekers lacking education and basic skills (Carnevale & Desrocher, 2002). The educational reform agenda, which established academic standards and accountability measures for all students (P.L. 107-110, The No Child Left Behind Act [NCLB] of 2001), is an outgrowth of our need for a skilled, competitive workforce. The intent of NCLB is to close the achievement gap and ensure high levels of academic attainment for all students (National Association of Secondary School Principals, 2005).

The recently reauthorized Carl D. Perkins Career and Technical Education Improvement Act of 2006 (P.L. 109-270, Perkins IV) and Individuals with Disabilities Education Improvement Act (IDEA) of 2004 (P.L. 108-446), reinforce high achievement for students, including those with disabilities, and support the goals of NCLB. Both the reauthorized Perkins Act and IDEA include language that mirrors the accountability/achievement mandates of NCLB. Individuals entering the workforce out of high school should have a strong foundation in academic and occupation skills (U.S. DOE, 2002). A challenge secondary special education faces is ensuring that all

students with disabilities have access to the full range of general education curricula opportunities that are available given the current reform agenda (Gray, 2004; Harvey & Koch, 2004; Johnson, Stodden, Emanuel, Luecking, & Mack, 2002).

Career and technical education programs have been documented as effective in serving a diverse student population (Gray & Herr, 1995; U.S. DOE, 2002). Gray (2001) indicated any student in public education can choose to participate in secondary CTE. Secondary CTE has been found to be important in promoting successful post-school employment for students with disabilities (Harvey, 2002; Sarkees-Wircenski & Scott, 2003; Wagner, 1991). For students with disabilities, work experience and CTE were significant factors leading to postsecondary employment according to the U.S. General Accounting Office (U.S. GAO, 2003).

Special population students enrolled in CTE, including those with disabilities, have unique and challenging instructional needs that CTE educators must address (Clark & Kolstoe, 1995; Rojewski, 1991). Kraska (1996) and Meers and Towne (1997) concluded that the real challenge for CTE instructors is to deliver programming to meet the needs of all students. CTE educators' attitudes and perceived instructional effectiveness concerning their working with special needs students has a direct relationship on students' success (Rojewski, Pollard, & Meers, 1990). CTE educators' attitude toward students with disabilities has been ex-

plored by several researchers (Cotton, 2000; Custer & Panagos, 1996; Harvey, 1999; Harvey, 2000; Harvey & Pellock, 2003; Kleinle, 1888; Kraska, 1996; Kraska, 1997; Minner, 1982; Trott & Holton, 1996).

Overview of the Literature

Implementing a case study approach to investigate the influence of educational labels and behavior descriptors on secondary CTE instructors, Minner (1982) reported CTE educators were strongly influenced by the education labels. Minner found that education labels of LD and CD negatively influenced CTE educators' perceptions and attitudes compared to non-labeled students. Case study vignettes were used in the research. Cases included educational labels (learning disabled, mentally retarded, and non-labeled) and student's academic and social characteristics and behavioral descriptors.

Kleinle (1988) used case study methods to develop an instrument used to explore the perceptions of CTE educators regarding instructional needs of special needs students in secondary CTE programs in Pennsylvania. Kleinle found that CTE educators had a lack of understanding concerning special needs students regarding their abilities and needs. The author also reported that Pennsylvania CTE educators appeared to have a general unwillingness to modify their programs for special needs students.

The attitudes of Louisiana postsecondary CTE instructors toward persons with disabilities enrolled in postsecondary CTE was investigated by Trott and Holton (1996). The authors reported that postsecondary instructors had attitudes that were generally accepting toward persons with disabilities. Trott and Holton indicated there was a wide range of variability (as measured by standard devia-

tion) among respondents' perceptions. Additional research was recommended concerning postsecondary CTE instructors' perceptions, attitudes and expectations to best serve students with disabilities in postsecondary CTE programs.

Kraska (1996) surveyed beginning Trade and Industry instructors at the secondary and postsecondary level in Alabama concerning their level of knowledge regarding special population students. Respondents had limited knowledge of this group as reported by survey findings. Kraska concluded that CTE instructors needed to be better prepared to address this group's unique educational needs. Training efforts needed to be provided. In another study of Alabama T & I educators, Kraska (1997) found that respondents did not differ concerning their attitudes toward special population students included in CTE based on several teacher variables. Further research on CTE educators' attitudes toward students with special learning needs was recommended. The author specifically recommended additional research to be conducted to assist the field in adequately serving students from special populations.

Custer and Panagos (1996) conducted a study with CTE teachers, their administrators, and special needs support staff in Missouri concerning CTE educators' effectiveness in working with special population groups. CTE instructors perceived themselves as less confident and less effective in working with students with disabilities compared to disadvantaged students. Students with physical disabilities were identified as the disability classification most challenging for CTE educators. CTE teachers indicated lower self-effectiveness ratings compared to the effectiveness

ratings they were given by their administrators and special needs support personnel. Additional, teacher training was recommended by the authors to best serve students from special populations in CTE.

In a similar study, Harvey (2000) found that CTE educators in central Pennsylvania perceived themselves to be adequately qualified and did an adequate job in serving students from special populations enrolled in secondary CTE. Pennsylvania CTE respondents indicated they were more confident and effective in working with disadvantaged students compared to students with a disability similar to Custer and Panagos (1996). Central Pennsylvania CTE educators perceived students with cognitive disabilities, emotional disabilities, deaf/hearing impairment, and blind/visual impairment as more challenging to work with in CTE settings compared to other students.

In investigating professional development needs for secondary CTE teachers in Indiana concerning students with special needs, Cotton (2000) reported that respondents "indicated a strong desire for additional training for working with students with special needs" (p. 37). The most significant training need identified by Indiana CTE respondents included help in writing and participation in the development of the IEP (individualized education program). Cotton recommended more research and teacher training, especially at the local level.

Harvey and Pellock (2003) surveyed CTE educators in eastern and central Pennsylvania using student case vignettes to investigate "attitudes and perceptions concerning the influence of students' educational labels, behaviors, and learning characteristics as they

related to instructional expectations, program modifications and accommodations, and youth postsecondary outcomes" (p. 31). They found that CTE educators had lower expectations for student with disabilities compared to the student without a disability (control case). The student cognitive disabilities, behavioral disorder, and visual impairment were classified as most challenging in relationship to CTE program expectations. CTE educators indicated that all students with disabilities, regardless of the disability classification, would need some level of accommodation/modification to fully participate in secondary CTE programming. CTE instructors also reported that they would need some level of assistance from other education personnel (e.g. administration, guidance counselor) to meet the needs of students with disabilities in fully participating in CTE programming. Student cases with physical disabilities, cognitive disabilities, behavior disorder, and visual impairment were perceived by respondents as those where they would most likely need outside assistance. The authors recommended continued research and training opportunities at all levels (pre-service, in-service, university coursework, CEU) to address the needs of CTE educators.

Purpose of the Study

Given the literature review and the current demand for skilled labor in the workforce, along with current education reform efforts, a case can be made for continued research to improve CTE program practices to meet the needs of students with special needs enrolled in secondary CTE. The current study replicates research conducted with Pennsylvania's CTE educators (see Harvey & Pellock, 2003). The purpose of this study was to explore Indiana CTE instruc-

tors' perceptions concerning students' educational label, behaviors, and learning characteristics as they related to instructional expectations, program modifications and accommodations, and postsecondary outcomes. The researchers used survey research methods and student case vignettes to explore differences among CTE educators' perception ratings for a student without a disability (control case) and a second pre-assigned case study for a student with a specified disability: a) physical disability [PHY]; b) specific learning disability [LD]; c) behavior disorder [BD]; d) cognitive disabilities [CD]; and e) visual impairment [VI]. Student cases were used to explore perceptions of Indiana CTE instructors concerning program expectations, academic and occupational skill attainment, program modifications/accommodations, needed personnel assistance, and post school outcomes, including employability in the CTE occupational area.

The following question/s guided the investigation.

1. Are there differences between CTE educators' perceptions of:
 - a) program expectations
 - b) program modifications/accommodations
 - c) program outcomes of students in secondary CTE by disability label, and if so what are they?

Method

Population and Sample

This study's population included all CTE educators at the secondary level in north central, south central, and east central Indiana. The study region represented approximately 40% of CTE programming within the state of Indiana. Sites were selected randomly from those listed by the Indiana Department of Education (IN DOE)

within Indiana's identified geographic regions. Ten CTE sites were invited to participate in the study. Five schools were located in what would be classified as northern east central Indiana and five schools were located in southern east central Indiana. A total of 149 of 220 Indiana CTE instructors chose to participate in the research project. Participation in the study was strictly voluntary. Participation by site location ranged from a low of 25% to a high of 94% with an overall participation rate of 68% for this study. There were five CTE sites with an 82% participation rate or higher (see Table 1).

Demographics and Education Levels of Participants

Table 2 presents the demographic characteristics of Indiana's CTE instructors by gender, age, educational level, years in their current position, and years in education. Males had a high level of participation in this study (62%). Most respondents indicated they were 41 years old or older (approximately 33% - 41 to 50, 40% - 51 or older). Education levels were split with approximately 28% of Indiana's CTE respondents having earned a high school diploma and 39% having earned a graduate degree. Forty-one percent of all CTE respondents had been in their current positions for 1-5 years. An additional 22% had been in their current job between 6-10 years. Approximately 44% (22% each for 1-5 years and 6-10 years) indicated they had been in education for ten years or less.

Table 3 indicates that 45% of Indiana's CTE respondents have taken no university coursework in the area of special needs and/or working with students with disabilities. Another 26% indicated having taken some university coursework more than two

Table 1
 Indiana Career and Technical Education
 Participation by Region, Site Location, Frequency,
 and Percentage

Region	Site Location	n	Participation	
			% within total	% within site
IN Northern Region	Site #1.	6	4%	46%
	Site #2.	13	9%	68%
	Site #3.	18	12%	86%
	Site #4.	16	11%	94%
	Site #5.	20	13%	59%
IN Southern Region	Site #6.	8	6%	50%
	Site #7.	7	5%	25%
	Site #8.	27	18%	90%
	Site #9.	20	13%	87%
	Site #10.	14	9%	82%
Total		149	100%	68%

years ago. The findings suggest that the majority of Indiana CTE respondents (71%) have had limited or no formal training in the area of special needs. In-service special needs training, as reported by Indiana’s CTE educators, also were limited according to these findings. One quarter (25%) of the Indiana respondents indicated they had received no in-service training in special needs. Another 26% indicated that they had not had any training in a period of two-years or more. The data suggest that many CTE educators in this study have received limited in-service training in the area of special needs from the local education agency (LEA). A positive finding reported was that 35% of CTE respondents indicated they had received some form of in-service training in the area of special needs within the past six months.

Instrumentation

Harvey and Pellock (2003) developed the assessment instrument, *Student Characteristics and Career and Technical Education Instructional Expectations Assessment Survey*, in 2000. The design features include: a) Section I, purpose of the research project; b) Section II, demographic information; c) Section III, specific questions concerning three subsections: 1 CTE Program Expectations; 2 CTE Program Modifications/Accommodations; 3 CTE Program Outcomes (a 5-point Likert-type scale [1=strongly disagree; 5=strongly agree] was used to rate agreement with survey items); and d) Section IV, open-ended comments.

Student case study vignettes were developed for a non-disabled student (control case) and five students with specified disabilities (comparison cases). Each student case vignette included background

information with academic profiles (IQ scores, math and reading achievement levels, GPA on a 4.0 scale, and grade average on 100 point scale) and a narrative descriptor for each student (disability classification, disability type, and a statement of special needs). Student cases included a student without a disability (control case). The disability cases included a student with a physical disability (PHY-wheelchair bound); specific learning disability (LD-low reading comprehension); behavior disorder (BD-impulse control hyperactivity); cognitive disabilities (CD-limited academic and adaptive behavior skills); and a visual impairment (VI-legally blind). See Figure 1 for a general overview of student case study vignette information.

The survey instrument and student case vignettes were sent to an outside expert jury panel for review concerning face and content validity. Additionally, the study instrument was pilot tested and revisions were made. A Cronbach’s alpha internal consistency coefficient of .65 was obtained for this specific study. For group data analysis an alpha level of .60 is considered a conservative minimum acceptable level (Salvia & Ysseldyke, 1985).

Procedure

The researchers contacted the director of CTE programs at each of the selected Indiana CTE sites for permission to conduct this study. The research design allowed the study to be conducted during staff meetings and/or in-service workshop sessions at each CTE location. Indiana CTE respondents completed two case studies; the control case (student without a disability) and a pre-assigned case for a student with a disability (PHY, LD, BD, CD, VI). Study participants were asked to complete the first case study (con-

Table 2
Indiana Career and Technical Education Participation by Site Location and Demographic Characteristics

	IN Northern Region										IN Southern Region												
	Site #1.	Site #2.	Site #3.	Site #4.	Site #5.	Site #6.	Site #7.	Site #8.	Site #9.	Site #10.	Site #1.	Site #2.	Site #3.	Site #4.	Site #5.	Site #6.	Site #7.	Site #8.	Site #9.	Site #10.			
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	
<i>Participants' Gender</i>																							
Male	1	0.7	7	4.7	12	8.1	7	4.7	12	8.1	5	3.4	4	2.7	22	14.8	14	9.4	8	5.4	92	61.7	
Female	5	3.4	6	4.0	6	4.0	9	6.0	8	5.4	3	2.0	3	2.0	5	3.4	6	4.0	6	4.0	57	38.3	
Total	6	4.0	13	8.7	18	12.1	16	10.7	20	13.4	8	5.4	7	4.7	27	18.1	20	13.4	14	9.4	149	100	
<i>Participants' Age</i>																							
20-30 yrs.	1	0.7	2	1.3	2	1.3	0	0	1	0.7	1	0.7	1	0.7	0	0	0	0	0	0	0	8	5.4
31-40 yrs.	0	0	2	1.3	7	4.7	5	3.4	3	2.0	3	2.0	0	0	3	2.0	8	5.4	2	1.3	33	22.1	
41-50 yrs.	5	3.4	4	2.7	5	3.4	4	2.7	7	4.7	2	1.3	4	2.7	14	9.4	2	1.3	2	1.3	49	32.9	
51+ yrs.	0	0	5	3.4	4	2.7	7	4.7	9	6.0	2	1.3	2	1.3	10	6.7	10	6.7	10	6.7	59	39.6	
Total	6	4.0	13	8.7	18	12.1	16	10.7	20	13.4	8	5.4	7	4.7	27	18.1	20	13.4	14	9.4	149	100	
<i>Educational Level</i>																							
HS Diploma	0	0	0	0	3	2.0	1	0.7	6	4.1	3	2.0	3	2.0	11	7.4	11	7.4	3	2.0	41	27.7	
2 yr. Associate	1	0.7	2	1.4	3	2.0	2	1.4	2	1.4	1	0.7	2	1.4	3	2.0	1	0.7	2	1.4	19	12.8	
4 yr. Bachelors	2	1.4	2	1.4	5	3.4	7	4.7	3	2.0	1	0.7	0	0	3	2.0	5	3.4	2	1.4	30	20.3	
Graduate	3	2.0	9	6.1	7	4.7	6	4.1	8	5.4	3	2.0	2	1.4	10	6.8	3	2.0	7	4.7	58	39.2	
Total	6	4.1	13	8.8	18	12.2	16	10.8	19	12.8	8	5.4	7	4.7	27	18.2	20	13.5	14	9.5	148	100	
<i>Years in Current Position</i>																							
1-5 years	3	2.0	2	1.3	6	4.0	7	4.7	9	6.0	4	2.7	3	2.0	9	6.0	12	8.1	6	4.0	61	40.9	
6-10 years	3	2.0	3	2.0	4	2.7	2	1.3	2	1.3	0	0	1	0.7	11	7.4	1	0.7	6	4.0	33	22.1	
11-15 years	0	0	1	0.7	3	2.0	2	1.3	3	2.0	0	0	1	0.7	1	0.7	2	1.3	2	1.3	15	10.1	
16-20 years	0	0	1	0.7	1	0.7	1	0.7	3	2.0	3	2.0	2	1.3	2	1.3	3	2.0	0	0	16	10.7	
21+ years	0	0	6	4.0	4	2.7	4	2.7	3	2.0	1	0.7	0	0	4	2.7	2	1.3	0	0	24	16.1	
Total	6	4.0	13	8.7	18	12.1	16	10.7	20	13.4	8	5.4	7	4.7	27	18.1	20	13.4	14	9.4	149	100	
<i>Years in Education</i>																							
1-5 years	1	0.7	1	0.7	6	4.0	3	2.0	3	2.0	1	0.7	2	1.3	6	4.0	7	4.7	3	2.0	33	22.1	
6-10 years	2	1.3	2	1.3	4	2.7	4	2.7	5	3.4	1	0.7	0	0	9	6.0	3	2.0	3	2.0	33	22.1	
11-15 years	2	1.3	2	1.3	1	0.7	1	0.7	2	1.3	1	0.7	1	0.7	0	0	2	1.3	1	0.7	13	8.7	
16-20 years	0	0	2	1.3	2	1.3	1	0.7	3	2.0	3	2.0	2	1.3	4	2.7	5	3.4	2	1.3	24	16.1	
21+ years	1	0.7	6	4.0	5	3.4	7	4.7	7	4.7	2	1.3	2	1.3	8	5.4	3	2.0	5	3.4	46	30.9	
Total	6	4.0	13	8.7	18	12.1	16	10.7	20	13.4	8	5.4	7	4.7	27	18.1	20	13.4	14	9.4	149	100	

Note: Percentages represent data reported by category.

Table 3
Indiana Career and Technical Education Participation by Site Location and Training Experiences

	IN Northern Region										IN Southern Region													
	Site #1. n %	Site #2. n %	Site #3. n %	Site #4. n %	Site #5. n %	Site #6. n %	Site #7. n %	Site #8. n %	Site #9. n %	Site #10. n %	Total n %	Site #1. n %	Site #2. n %	Site #3. n %	Site #4. n %	Site #5. n %	Site #6. n %	Site #7. n %	Site #8. n %	Site #9. n %	Site #10. n %	Total n %		
<i>University Coursework</i>																								
None	3	2.0	4	2.7	6	4.1	9	6.1	9	6.1	4	2.7	4	2.7	14	9.5	10	6.8	4	2.7	4	2.7	67	45.3
Within 6 months	1	0.7	2	1.4	1	0.7	2	1.4	3	2.0	1	0.7	0	0	1	0.7	4	2.7	0	0	0	0	15	10.1
Within 1 year	0	0	1	0.7	2	1.4	2	1.4	1	0.7	0	0	0	0	4	2.7	2	1.4	2	1.4	2	1.4	14	9.5
Within 2 years	0	0	3	2.0	2	1.4	1	0.7	0	0	0	0	1	0.7	3	2.0	2	1.4	2	1.4	2	1.4	14	9.5
More than 2 years	2	1.4	3	2.0	7	4.7	2	1.4	6	4.1	3	2.0	2	1.4	5	3.4	2	1.4	6	4.1	6	4.1	38	25.7
Total	6	4.1	13	8.8	18	12.2	16	10.8	19	12.8	8	5.4	7	4.7	27	18.2	20	13.5	14	9.5	14	9.5	148	100
<i>In-Service Training</i>																								
None	3	2.0	5	3.4	8	5.4	1	0.7	5	3.4	2	1.4	2	1.4	3	2.0	7	4.8	1	0.7	4	2.7	37	25.2
Within 6 months	0	0	3	2.0	2	1.4	13	8.8	11	7.5	3	2.0	1	0.7	11	7.5	3	2.0	4	2.7	4	2.7	51	34.7
Within 1 year	1	0.7	0	0	5	3.4	0	0	2	1.4	1	0.7	2	1.4	4	2.7	4	2.7	4	2.7	1	0.7	20	13.6
Within 2 years	0	0	2	1.4	0	0	0	0	1	0.7	0	0	1	0.7	7	4.8	2	1.4	7	4.8	7	4.8	20	13.6
More than 2 years	2	1.4	3	2.0	3	2.0	1	0.7	1	0.7	2	1.4	1	0.7	1	0.7	4	2.7	1	0.7	1	0.7	19	12.9
Total	6	4.1	13	8.8	18	12.2	15	10.2	20	13.6	8	5.4	7	4.8	26	17.7	20	13.6	14	9.5	14	9.5	147	100

Note: Percentages represent data reported by category.

Figure 1
Student Case Studies Overview

Student: Joe Jones
Disability: None

Joel Jones is a 16-year old first-year student who will be enrolled in your vocational program next year. The following information is found in Joe's student file. No special needs.

<u>Student IQ</u> Verbal: 113 Performance: 110 Full Scale: 111	<u>Grade Point Average</u> 3.60 - 90 on a 100 point scale
<u>California Achievement Test</u> Math Computation: 10.5 Grade Level Reading Comprehension: 11.4 Grade Level	<u>Iowa Achievement Test</u> Math Computation: 10.3 Grade Level Reading Comprehension: 11.1 Grade Level

Student: Al Albert
Disability: Physical Disability

Al Albert is a 16-year old first-year student who will be enrolled in your vocational program next year. The following information is found in Al's student file. He has a physical disability with paralysis of his legs. He is wheelchair bound and requires accommodations for this physical disability. He is served with an individualized educational program (IEP) under IDEA.

<u>Student IQ</u> Verbal: 123 Performance: 115 Full Scale: 119	<u>Grade Point Average</u> 3.95 - 98 on a 100 point scale
<u>California Achievement Test</u> Math Computation: 13.2 Grade Level Reading Comprehension: 13.6 Grade Level	<u>Iowa Achievement Test</u> Math Computation: 13.3 Grade Level Reading Comprehension: 13.5 Grade Level

control case – student without a disability) and then complete a second pre-assigned case study (student with a specified disability). Instructions and instrumentation were the same for both student cases (complete the survey information as if this

student were enrolled in your CTE program currently). The study took approximately 30-45 minutes to complete.

Data Analysis

Data were analyzed using descriptive and inferential statistical procedures. Means, stan-

dard deviation, ANOVA procedures using Welch tests to report *F* statistics, Tamhane (T2) post hoc tests, and level of significance are reported in table format by research questions and survey sections. Statistical analysis included one-way

Figure 1, continued

Student: Larry Leeman
Disability: Learning Disability

Larry Leeman is a 16-year old first-year student who will be enrolled in your vocational program next year. The following information is found in Larry’s student file. Larry has an IEP. He has a specific learning disability in reading comprehension. He requires accommodations through untimed tests, resource room support with oral reading and books on tape. He also has been given testing in a separate environment with academic support monitoring. He is served with an individualized educational program (IEP) under IDEA.

<p><u>Student IQ</u> Verbal: 91 Performance: 108 Full Scale: 101</p>	<p><u>Grade Point Average</u> 3.0 - 87 on a 100 point scale</p>
<p><u>California Achievement Test</u> Math Computation: 11.1 Grade Level Reading Comprehension: 5.6 Grade Level</p>	<p><u>Iowa Achievement Test</u> Math Computation: 10.9 Grade Level Reading Comprehension: 5.2 Grade Level</p>

Student: Frank Franklin
Disability: Behavior Disorder

Frank Franklin is a 16-year old first-year student who will be enrolled in your vocational program next year. The following information is found in Frank’s student file. Frank has an IEP. He is identified as having a behavior disorder. He has impulse control issues and ADHD--attention deficit hyperactivity disorder. Frank requires specific accommodations through a behavior management plan and a reward structure. He is served with an individualized educational program (IEP) under IDEA.

<p><u>Student IQ</u> Verbal: 97 Performance: 103 Full Scale: 99</p>	<p><u>Grade Point Average</u> 2.0 - 79 on a 100 point scale -recent school data indicates failing GPA in several classes</p>
<p><u>California Achievement Test</u> Math Computation: 10.1 Grade Level Reading Comprehension: 9.5 Grade Level</p>	<p><u>Iowa Achievement Test</u> Math Computation: 10.3 Grade Level Reading Comprehension: 9.8 Grade Level</p>

analysis of variance (ANOVA) and post-hoc tests to determine differences between and within student case ratings per survey item for each of the three survey sections. The assumption of

equal group variance was explored using the Levene statistic to test for equal variance among groups. Due to high levels of unequal variances, the Welch test for the *F* statistic,

which is a more robust analysis accounting for unequal variance, was used to report ANOVA results. The alpha level for ANOVA analysis was set at .01 to reduce potential Type I error.

Figure 1, continued

Student: Bobby Brown
Disability: Cognitive Disabilities

Bobby Brown is an 18-year old first-year student who will be enrolled in your vocational program next year. The following information is found in Bobby's student file. Bobby has an IEP. He is identified as having cognitive disabilities. He has significant sub-average intellectual and adaptive behavior functioning. Bobby has academic accommodations through a modified curriculum and grading system. His program has reduced content in curriculum. He is served with an individual educational plan (IEP) under IDEA.

<u>Student IQ</u> Verbal: 64 Performance: 70 Full Scale: 66	<u>Grade Point Average</u> 2.0 - 85 average on a Special Education Modified Grading Program
<u>California Achievement Test</u> Math Computation: 3.9 Grade Level Reading Comprehension: 3.3 Grade Level	<u>Iowa Achievement Test</u> Math Computation: 4.2 Grade Level Reading Comprehension: 3.2 Grade Level

Student: Sam Smith
Disability: Visual Impairment

Sam Smith is a 16-year old first-year student who will be enrolled in your vocational program next year. The following information is found in Sam's student file. Sam has an IEP. He is identified as having a visual impairment. He is classified as being legally blind. Sam requires a modified curriculum and special education service. He needs enlarged text, uses a computer with software for the visually impaired, and needs modifications in the physical environment. He is served with an individualized educational program (IEP) under IDEA.

<u>Student IQ</u> Verbal: 114 Performance: 100 Full Scale: 105	<u>Grade Point Average</u> 3.4 - 93 on 100-point scale
<u>California Achievement Test</u> Math Computation: 10.4 Grade Level Reading Comprehension: 11.1 Grade Level	<u>Iowa Achievement Test</u> Math Computation: 10.2 Grade Level Reading Comprehension: 11.2 Grade Level

Tamhane (T2) post hoc tests were used as a complement to the Welch test for the *F* statistic with the alpha level set at .05.

Results

The results of this investigation are reported in sections below for each specific research question in the study.

Research Question 1

Are there differences between CTE educators' perceptions of program expectations of students in secondary CTE by disability label, and if so what are they?

Comparisons of Indiana CTE participants' ratings by program expectations are presented in Table 4.

Item #1 "This student will fit socially with others in my program," Welch $F(5, 77.06) = 16.012, p < .001$ indicated Indiana CTE teachers perceived the student with BD would have more challenges fitting in socially compared to the student without a disability and the student with LD, or VI. Likewise, ratings indicated the student with CD would have more difficulty fitting in socially in CTE programs compared to the student without a disability and the student with PHY, LD, or VI.

Item #2 "This student will have similar academic attain-

ment compared to others in my program," Welch $F(5, 78.30) = 10.168, p < .001$ showed Indiana CTE teachers perceived the student with CD would have lower academic attainment compared to the student without a disability and the student with PHY or VI. Respondents also indicated the student with a BD would more likely have more academic challenges compared to the student without a disability and the student with PHY.

Item #3 "This student will gain occupational skill competencies at the same level as others in my program," Welch $F(5, 77.32) = 13.752, p < .001$, indicated CTE instructors' expectations concerning occupational skills would be lower for the student with CD compared to the student without a disability and the student with PHY or LD. Also, the student cases involving BD and VI were perceived by CTE educators to have more difficulty gaining occupational skill competencies compared to the student without a disability.

Item #4 "I would expect this student to perform occupational skills at 85-100%," Welch $F(5, 69.61) = 33.517, p < .001$ indicated that CTE educators perceived that the student with CD would be less likely to perform

skills at 85-100% accuracy compared to the student without a disability and the student with PHY or LD. Student cases involving LD, BD, and VI were also perceived by Indiana CTE instructors as less likely to perform tasks/skills at this level compared to the student without a disability.

Item #5 "I would expect this student to perform occupational skills at 70-84%," Welch $F(5, 74.99) = 5.992, p < .001$ indicated that CTE educators perceived that the student cases with CD, PHY, and VI would be less likely to performing skills at 70-84% accuracy compared to the student with LD or BD.

Item #6 "I would expect this student to perform occupational skills at 50-69%," Welch $F(5, 75.38) = 4.961, p < .001$ indicated that CTE educators' expectations for the students with CD and BD would be more likely to perform occupational skills at this level of accuracy compared to the student without a disability.

Item #7 "I would expect this student to perform occupational skills at 50% or below," Welch $F(5, 68.17) = 10.997, p < .001$ had ratings that tended to disagree with this statement for all six student cases. Post-hoc tests revealed that Indiana CTE re-

Table 4
Comparison of Indiana Career and Technical Education Participants by Program

Career and Technical Program Expectations		Non-Disabled		Physical Disability		Learning Disability		Behavior Disorder		Cognitive Disability		Visual Impairment		df1	df2	Welch - F
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD			
Item #	This student will/I would expect this student to:															
1	fit socially with others	4.10	.81	3.67	1.08	3.79	.93	3.04	.66	2.74	1.12	3.86	.79	5	77.06	16.012**
2	have similar academic attainment compared to others	3.54	1.06	3.79	1.19	2.97	1.07	2.92	.79	2.19	1.13	3.57	1.21	5	78.30	10.168**
3	gain occupational skill competencies at the same level as others	3.71	1.13	3.27	1.39	3.24	1.26	2.77	.86	2.13	1.08	2.65	1.08	5	77.32	13.752**
4	perform occupational skills at 85-100%	4.36	.89	3.50	1.54	3.28	1.38	2.42	1.20	2.14	1.18	2.55	1.27	5	69.61	33.517**
5	perform occupational skills at 70-84%	2.89	1.14	2.44	1.36	3.46	1.12	3.44	.91	2.30	1.31	2.45	1.09	5	74.99	5.992**
6	perform occupational skills at 50-69%	1.97	1.09	2.03	1.08	2.49	1.12	2.96	1.28	2.77	1.19	2.19	1.12	5	75.38	4.961**
7	perform occupational skills at 50% or below	1.35	.79	2.29	1.55	1.76	.92	2.23	1.36	2.82	1.46	2.50	1.23	5	68.17	10.997**

Note: Asymptotically F distributed; *p<.01, **p<.001

spondents felt that the students with CD, PHY, BD, and VI would more likely to perform occupational skills at 50% or below compared to the student without a disability. Additionally, the student with CD was seen as more likely to perform at this level compared to the student with LD.

Research Question 2

Are there differences between CTE educators' perceptions of program modifications/accommodations of students in secondary CTE by disability label, and if so what are they?

Data presented in Table 5 represents comparisons of Indiana CTE respondents' ratings by program modifications and accommodations. All of the specified fifteen items in this section had significant effects at the $p < .001$ level.

Item #1 "This student would need no program modifications/accommodations to fully participate in my program," Welch $F(5, 73.73) = 55.110, p < .001$ indicated CTE educators perceived that student cases involving PHY, LD, BD, CD, and VI would more likely need some form of modifications/accommodations to fully participate in CTE programming compared to the student without a disability. Additionally, the student with VI was perceived to be more likely to need modifications/accommodations in CTE programming compared to the student with PHY, LD, or BD.

Item #2 "This student would need a behavior management plan to fully participate in my program," Welch $F(5, 77.21) = 15.228, p < .001$ showed that CTE teachers anticipated needing a behavior management plan for the students with BD and CD more so compared to the student without a disability and the student with PHY or VI. Additionally, Indiana instructors indicated the potential need for a behavior management plan for the student with BD compared to the student with LD.

Item #3 "This student would need assistance in peer relations to fully participate in my program," Welch $F(5, 75.51) = 11.853, p < .001$ found that Indiana respondents perceived that student cases involving students with a BD and CD would potentially need more assistance in peer relations to fully participate in secondary CTE compared to the student without a disability and the student with LD or VI.

Item #4 "This student would need reading modifications/accommodations to fully participate in my program," Welch $F(5, 77.93) = 61.147, p < .001$ found students with LD and VI would more likely need reading modifications/accommodations compared to the student without a disability and students with PHY or BD. Indiana CTE instructors also indicated that students with BD and CD would more likely need reading assistance compared to the student without a disability and the student with PHY.

Item #5 "This student would need math modifications/accommodations to fully participate in my program," Welch $F(5, 74.82) = 14.26, p < .001$ indicated study respondents felt that the student with CD would most likely need math assistance compared to the student without a disability and the student with PHY, LD or BD. The student with VI would more likely need math assistance to fully participate in CTE compared to the student without a disability or the student with PHY. Respondents also indicated that the student with BD would potentially be more likely to need math assistance compared to the student with PHY.

Item #6 "This student would need text and assignment modifications and/or accommodations to fully participate in my program," Welch $F(5, 75.51) = 40.005, p < .001$ revealed students with LD, CD, and VI were perceived as more likely to

need text and assignment modifications/accommodations compared to the student without a disability, or the student with PHY or BD. The student with BD was perceived as more likely to need text and assignment assistance compared to the non-disabled student or the student with PHY.

Item #7, "This student would need test and quiz modifications/accommodations to fully participate in my program," Welch $F(5, 77.81) = 66.156, p < .001$ indicated that Indiana CTE instructors perceived the student cases with LD, CD, and VI as more likely needing test and quiz modifications/accommodations compared to the student without a disability and the student with PHY or BD. Respondents indicated that the student with BD would more likely need test and quiz assistance compared to the student without a disability and the student with PHY.

Item #8, "This student would need classroom modifications/accommodations to fully participate in my program," Welch $F(5, 75.99) = 48.572, p < .001$ indicated each student disability case (PHY, LD, BD, CD, VI) would potentially need some level of classroom modifications and/or accommodations to fully participate in CTE compared to the student without a disability. Additionally, the student with VI was perceived as more likely needing classroom aides compared to student cases with LD, BD, CD, or PHY.

Item #9 "This student would need work station modifications/accommodations to fully participate in my program," Welch $F(5, 74.72) = 46.824, p < .001$ indicated CTE instructors felt that the students with PHY and VI were more likely to need work station modifications and/or accommodations compared to the student without a disability and the student cases with LD, BD, or CD. The student cases with BD and CD were perceived

Table 5
 Comparison of Indiana Career and Technical Education Participants by Program Modifications and Accommodations Ratings

Career and Technical Program Modifications and Accommodations	Non-Disabled		Physical Disability		Learning Disability		Behavior Disorder		Cognitive Disability		Visual Impairment		Welch - F		
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD			
Item #	This student would need/I would need assistance from:														
1	4.39	.93	2.94	1.68	2.68	1.33	2.69	1.19	2.23	1.35	1.48	.92	5	73.73	55.110**
2	1.87	1.07	1.94	.99	2.32	1.09	3.62	1.09	3.06	1.15	1.86	1.19	5	77.21	15.228**
3	1.94	1.01	2.42	1.17	2.42	1.16	3.38	1.23	3.27	1.14	2.14	1.06	5	75.51	11.853**
4	1.73	1.03	1.58	.90	4.05	1.03	2.81	1.09	3.74	1.29	4.33	.91	5	77.93	61.147**
5	1.75	.92	1.52	.87	2.26	1.24	2.31	1.01	3.52	1.38	3.10	1.41	5	74.82	14.326**
6	1.72	.92	1.67	.89	3.53	1.15	2.54	1.06	3.68	1.22	4.05	1.11	5	75.51	40.005**
7	1.72	.95	1.55	.75	3.71	.98	2.50	1.10	3.73	1.20	4.29	.78	5	77.81	66.156**
8	1.73	.97	3.21	1.51	2.82	1.35	2.69	1.25	3.40	1.27	4.38	.74	5	75.99	48.572**
9	1.75	.91	3.94	1.17	2.26	1.13	2.46	1.06	2.86	1.27	4.33	.85	5	74.72	46.824**
10	1.77	.95	3.39	1.51	2.32	1.01	2.23	1.07	3.37	1.29	4.10	1.09	5	74.49	26.703**
11	1.61	.96	3.06	1.51	2.32	1.31	2.81	1.13	2.90	1.39	3.80	1.36	5	71.82	19.835**
12	1.78	1.01	2.85	1.34	2.74	1.32	3.31	1.05	3.07	1.43	3.35	1.38	5	72.73	17.700**
13	1.77	1.00	2.97	1.57	2.92	1.23	3.00	1.09	3.27	1.46	3.76	1.26	5	73.72	21.009**
14	1.67	.98	2.91	1.42	3.39	1.30	3.54	1.17	3.43	1.38	4.00	1.18	5	73.63	35.736**
15	1.44	.84	2.24	1.62	1.58	.94	2.12	1.24	2.55	1.32	2.81	1.47	5	71.15	8.508**

Note: Asymptotically F distributed; *p<.01, **p<.001.

as potentially needing work station modifications and/or accommodations more so than the student without a disability to fully participate in CTE.

Item #10 "This student would need occupational task modifications and/or accommodations to fully participate in my program," Welch $F(5, 74.49) = 26.703, p < .001$ indicated Indiana CTE educators felt that the students with PHY, CD, and VI would more likely need occupational task modifications/accommodations to fully participate in CTE programming compared to the student without a disability and the student with LD or BD.

Professional Assistance

The next series of questions sought to find which student cases as perceived by CTE instructors required outside professional educators' assistance in meeting students' needs in CTE programs. Post-hoc tests for Item #11 "I would need assistance from my administrator in successfully meeting the needs of this student in my program," Welch $F(5, 71.82) = 19.835, p < .001$ indicated that Indiana CTE instructors would potentially need the assistance of their administrator to successfully meet the needs of students with a disability (PHY, LD, BD, CD, VI) compared to the student without a disability. Additionally, CTE respondents felt that they would most likely need assistance from administration concerning the student with VI compared to the student with LD.

Item #12 "I would need assistance from my guidance counselor in successfully meeting the needs of this student in my program," Welch $F(5, 72.73) = 17.700, p < .001$ revealed CTE instructors perceived they would need assistance from their guidance counselor to assist them in successfully meet the needs of students with a disability (PHY, LD, BD, CD, VI)

compared to the student without a disability (control case).

Item #13 "I would need assistance from my vocational learning support staff in successfully meeting the needs of this student in my program," Welch $F(5, 73.72) = 21.009, p < .001$ showed that CTE respondents in Indiana would more likely need assistance from their vocational learning support staff in meeting the needs of all students with a disability (PHY, LD, BD, CD, VI) compared to the student without a disability enrolled in secondary CTE programs.

Item #14, "I would need assistance from the sending school special education staff in successfully meeting the needs of this student in my program," Welch $F(5, 73.63) = 35.736, p < .001$ indicated CTE instructors perceived needing a higher level of assistance from special education staff in meeting the needs of students with a disability (PHY, LD, BD, CD, VI) to successfully participate in secondary CTE compared to the student without a disability.

Item #15 "This student would not be successful even with appropriate support and modifications/accommodations in my program," Welch $F(5, 71.15) = 8.509, p < .001$ had ratings that generally disagreed with this statement. Indiana CTE respondents indicated the student cases involving CD and VI were perceived to be more challenging concerning secondary CTE programming compared to the student without a disability and the student with LD.

Research Question 3

Are there differences between CTE educators' perceptions of program outcomes of students in secondary CTE by disability label, and if so what are they?

Table 6 presents the overall ratings for CTE participants' by program outcome items. ANOVA procedures (Welch tests) identified significant effects ($p < .01$) for each

item, with the exception of item #7 "This student has the potential to be employed in a targeted specific entry-level position within the occupational trade area," Welch $F(5, 76.34) = 2.148$ (ns).

Item #1 "This student has the potential to attend a 4-year college/university," Welch $F(5, 75.35) = 30.472, p < .001$ showed that Indiana CTE educators perceived students with LD, BD, and CD as less likely to attend a 4-year college/university compared to the student without a disability. Additionally, CTE respondents felt that the student with CD would be less likely to attend a 4-year college/university compared to the student with LD.

Item #2 "This student has the potential to attend a 2-year junior college/community college," Welch $F(5, 74.48) = 15.142, p < .001$ indicated CTE respondents felt the student with CD would be less likely to attend a 2-year junior or community college compared to the student without a disability and all other student cases (PHY, LD, BD, VI) regardless of the disability classification. Indiana CTE instructors indicated that the student cases with LD and BD would potentially be less likely to attend a 2-year junior or community college compared to the student without a disability or the student with PHY.

Item #3 "This student has the potential to attend a technical/trade school," Welch $F(5, 71.19) = 11.996, p < .001$ indicated that survey participants perceived the student with LD would be less likely to attend a technical trade school compared to the student without a disability. Respondents also indicated that the student with CD would be less likely to attend a technical trade school compared to the student without a disability and the student with PHY, LD or BD. It is important to note that Indiana CTE respondents were

Table 6
Comparison of Indiana Career and Technical Education Participants by Program Outcomes Ratings

Career and Technical Program Outcomes		Non-Disabled		Physical Disability		Learning Disability		Behavior Disorder		Cognitive Disability		Visual Impairment		df1	df2	Welch - F
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD			
Item #	This student has the potential to:															
1	attend a 4-year college/university	4.29	.85	4.61	.82	3.05	1.03	3.04	1.14	2.07	1.22	4.19	.75	5	75.35	30.472**
2	attend a 2-year junior college/community college	4.48	.79	4.58	.79	3.68	1.01	3.69	1.08	2.55	1.40	4.19	.75	5	74.48	15.142**
3	attend a technical/trade school	4.51	.71	4.15	1.14	3.95	.86	4.04	.87	3.03	1.12	3.85	1.22	5	71.19	11.996**
4	be employed in the full range of employment in the occupational area	4.43	.81	3.82	1.18	3.53	.95	3.58	.98	2.47	1.25	2.71	1.18	5	73.01	24.152**
5	be employed in specific areas of employment in the occupational area	4.31	.91	4.27	.83	4.05	.73	4.08	.68	2.93	1.25	3.24	1.30	5	77.20	8.594**
6	be employed in a targeted cluster of jobs within the occupational area	4.20	.98	4.21	.89	3.95	.86	4.08	.68	3.10	1.26	3.29	1.07	5	78.53	6.577**
7	be employed in a targeted specific entry-level position in the occupational area	4.11	1.09	4.06	.96	3.82	1.03	4.00	.89	3.69	1.10	3.33	1.06	5	76.34	2.148
8	does not have the potential to be employed in the occupational area.	1.46	.96	2.06	1.41	1.49	.93	1.62	.80	2.39	1.31	2.48	1.12	5	73.95	5.735**

Note: Asymptotically F distributed; *p<.01, **p<.001.

either neutral or leaned toward agreement on this item. The differences presented here indicate greater or lesser probability as perceived by CTE respondents by case study comparisons.

Item #4 “This student has the potential to be employed in the full range of employment in this occupational trade area,” Welch $F(5, 73.01) = 24.152, p < .001$ indicated CTE respondents perceived that the student with CD would be less likely to find employment in the full range of positions within the occupational trade area as compared to the student without a disability and the student with PHY, LD, or BD. Respondents also indicated the student with VI would be less likely to find employment in the full range of positions within the occupational trade area compared to the student without a disability and the student with PHY. Additionally, the student cases with LD and BD were viewed as potentially less likely to find employment in the full range of positions within the occupa-

tional trade area compared to the student without a disability.

Item # 5 “This student has the potential to be employed in specific areas of employment in the occupational trade area,” Welch $F(5, 77.20) = 8.594, p < .001$ revealed that Indiana CTE educators felt the students with CD and VI would be less likely to have job potential in specific areas of employment within the occupational trade area compared to the student without a disability and the student with PHY. The student with CD was also perceived as less likely to have job potential in specific areas of employment in the occupational trade area compared to the student with LD or BD.

Item #6 “This student has the potential to be employed in a targeted cluster of jobs within the occupational trade area,” Welch $F(5, 78.53) = 6.577, p < .001$ indicated that survey respondents perceived the students with CD and VI would potentially be less employable within a cluster of jobs in the occupational trade area com-

pared to the student without a disability and the student with PHY. Additionally, Indiana CTE respondents felt that the student with CD would be less likely to be employed in a cluster of jobs within the occupational trade area compared to the student with LD or BD.

Item #8 “This student does not have the potential to be employed in the occupational trade area,” Welch $F(5, 73.95) = 5.735, p < .001$ indicated that the students with CD and VI would have more challenges finding employment in the occupational trade area compared to the student without a disability or the student with LD. It is important to note that Indiana CTE respondents in this study had varying levels of disagreement for all student cases concerning this item. The differences presented here indicate perceptions of greater difficulty or lesser probability as perceived by CTE respondents by case study comparisons.

Discussion

This study explored the influences that student's disability has on program expectations, modifications, accommodations, and postsecondary youth outcomes as perceived by Indiana's secondary CTE instructors. This research replicated a study conducted with Pennsylvania CTE instructors (see Harvey & Pellock, 2003). Occupational training designed for students to meet the challenges of today's workforce is mandated in the Carl D. Perkins Career and Technical Education Improvement Act of 2006 (P.L. 109-270). Transition services for students with disabilities are clearly articulated in IDEA 2004 (P.L. 108-446). This study used these mandates as a backdrop to explore three critical questions concerning: a) instructor's expectations; b) program modification/accommodations; and c) post school outcomes for students with and without a disability participating in secondary CTE. A sample of Indiana CTE instructors' ratings were used to establish perceptions and comparisons. One-way ANOVA using Welch *F* and Tamhane (*T*₂) post hoc procedures were used to investigate statistical significance for survey items linked to the research questions for this study.

Limitations

The reader is cautioned that the study involved specified geographic regions within the state of Indiana and the results are limited to the sample from which the data were drawn. There are cautions concerning case-based methods (e.g. limitations of specified student cases) used in this investigation and the analysis decisions made concerning data reporting (i.e. conservative measures to account for unequal variance). Results are based on behavior

and learning characteristics and educational labels presented in the specific student cases used in this study (see Figure 1).

Study Replication Comparison

Indiana CTE instructors indicated concerns regarding CTE program expectations for the student labeled CD compared to other students. Ratings suggested Indiana CTE instructors had concerns that the student with visual impairment (VI) would be less likely to attain/performance in CTE compared to other students. CTE respondents indicated that the student labeled BD would have challenges fitting in socially, have limited academic attainment, and have difficulty learning occupational skills compared to others. The ratings reported here align with those reported in a Pennsylvania CTE study conducted by Harvey and Pellock (2003). There appears to be a need for additional training for CTE instructors to feel comfortable in working with students with disabilities in secondary CTE programs. The findings reported here indicate this is especially true concerning students labeled as CD, VI and BD.

Students with disabilities were perceived to need more program accommodations and/or modifications compared to the student without a disability (control case) by secondary CTE instructors in Indiana. Indiana CTE respondents' perceptions on these items are very similar to those reported by Pennsylvania CTE instructors (Harvey & Pellock, 2003). These findings point to the need for additional training and support for CTE instructors as to best meeting the needs of students with disabilities in CTE programs (e.g. accommodations/modifications concerning academics, classroom tasks, work station areas, and occupational tasks). Addi-

tionally, the data also suggests that CTE instructors would benefit from assistance from a wide range of educational professionals to best meet the needs of students with disabilities in secondary CTE programs (e.g. assistance from administration, guidance counselor, vocational learning support, and home school special education staff).

Postsecondary outcomes (e.g. college/university, technical/trade school, and employment) were perceived to be more challenging for students labeled CD, LD, and BD. The student labeled VI was seen as having limited employment opportunities compared to other students. Similar patterns were reported by Harvey and Pellock (2003) for Pennsylvania secondary level CTE instructors.

Literature Comparisons

Results of this study indicate that CTE instructors' perceptions of students with special needs potentially influence the level and type of program success as suggested by Rowjewski, Pollard, and Meers (1990). Perceived student expectations, program accommodations and modifications, and post school outcomes continue to be areas of concern according to Indiana CTE respondents in this investigation. CTE instructors clearly articulated the need for supports and assistance for specific student cases in this study. The data suggests that students with disabilities require additional attention to best benefit from secondary CTE programming. Findings also suggest a willingness on the part of Indiana CTE instructors to seek out appropriate assistance where needed. The findings tend to support the impact of a disability label reported by Minner (1982).

Indiana CTE instructors perceived students labeled MCD or VI to be more challenged in their

ability to perform occupational skill competencies. This finding is similar to those reported by Harvey (2000). Positive behavior management and peer relationship issues were identified for BD and CD which is consistent with results reported by Custer and Panagos (1996). Academic modifications and accommodations for students labeled CD, VI, LD, and BD reported here are similar to those reported by Custer and Panagos (1996). Classroom, workstation, and occupational task modifications needed for students labeled VI, CD, or PHY align with findings reported by Harvey (1999). The need for instructional supports concerning CD, BD, VI, or PHY students are consistent with results reported by Custer and Panagos (1996) and Harvey (2000).

Potentially the most important finding from this investigation centers on the need for CTE instructor training as suggested by several researchers (Cotton, 2000; Custer & Panagos, 1996; Harvey, 2000; Harvey & Pellock, 2003; Kraska, 1997). While almost half of Indiana's CTE respondents indicated they had some level of in-service training in the area of special needs, 38% of respondents had no in-service training or had not received in-service training within the last two years. An approximate 71% of Indiana CTE respondents reported having no university/college coursework (45%) or taking coursework within the last two years (26%) in special needs. In-service training at the local level and participation in coursework at the college/university level in the area of special needs for Indiana CTE respondents appears to be an identified need. The findings suggest that Indiana CTE respondents recognized individual student needs and rated accommodations, modifications, and the need for outside assistance

accordingly. These ratings suggest an awareness concerning the challenges in appropriately serving students with special needs in CTE programming, much like those reported by Cotton (2000). More training targeted at assisting CTE instructors in best meeting the needs of special needs students enrolled in secondary CTE programs is critically important.

Indiana CTE perception ratings serve as a reminder to the field of the importance for teacher training in the area of special needs as supported by the literature (Cotton, 2000; Custer & Panagos, 1996; Kleinle, 1988; Kraska, 1996; Meers & Towne, 1997; Harvey, 2000; Harvey & Pellock, 2003). This study also supports the need for more research concerning CTE instructors' perceptions of postsecondary expectations for students with special needs as suggested by Kraska (1996), Trott and Holton (1996), and Harvey and Pellock (2003). An important finding was that respondents recognized student's individualized needs based on information provided in the student case studies. This points to important potential linkages in attaining the transition mandate of IDEA, workforce development mandated in Perkins, and positive post-school employment outcomes identified by the U.S. GAO (2003). The key is to identify specific training needs, create appropriate and on-going professional/staff development, and support CTE instructors in their ability to educate all students enrolled in their CTE programs.

Recommendations

Based on the findings of this investigation, the following recommendations are made.

1. Continue research efforts on CTE instructors' perceptions of students with special needs enrolled in secondary programming, their training

needs, instructional concerns, and evidence-based best practices in CTE.

2. Develop appropriate and on-going in-service professional development activities at the local level to meet the identified needs of CTE instructors in most effectively serving all students, including special needs students, in CTE programs.
3. Partner with regional colleges and/or universities who offer coursework in the area of special needs/special education. Coursework should address broad issues of learning and behavioral characteristics of students with special learning needs and provide specific instructional/behavior management strategies and techniques to best serve this population for CTE educators.
4. Reinforce the research and training efforts recommended above with local CTE instructors in light of the recent mandates and current reform agenda (No Child Left Behind Act of 2001, The Carl D. Perkins Career and Technical Education Improvement Act of 2006, The Individuals with Disabilities Education Improvement Act of 2004) and support the practical/economic implications outlined in the US GAO, 2003.

References

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