

**PERCEIVED PROFESSIONAL DEVELOPMENT NEEDS OF IDAHO
SECONDARY CAREER AND TECHNICAL EDUCATION TEACHERS:
PROGRAM MANAGEMENT**

John G. Cannon, Ph.D.

University of Idaho

Allen Kitchel, Ph.D.

University of Idaho

Dennis W. Duncan, Ph. D.

The University of Georgia

Introduction

As the nature of the global economy evolves, career and technical education (CTE) secondary teachers face the challenge of providing learning experiences that prepare their students to enter the workforce or to pursue additional educational opportunities. Shrinking budgets due to the economic slowdown in the United States add to the challenge of meeting the educational needs of CTE students. Similarly, the implementation of accountability legislation such as the *No Child Left Behind Act* (NCLB, 2001) has presented challenges to the CTE profession. Also aligned with industry standards, CTE teachers and programs strive to meet the mandates of legislation and prepare students for rewarding careers. In order to prepare students for the needs of industry or for admission to a post-secondary institution, CTE teachers must continually work to stay in the forefront of good teaching practices related to pedagogy and program management. To meet this demand, educators need professional development opportunities from both educational institutions and industry.

Professional development can be defined as the learning activities and experiences educators engage, from pre-service education to retirement, in order to increase career related performances (Rhodes, Stokes, & Hampton, 2004; Ruhland & Bremer, 2002). Lambeth, Elliot, and Joerger (2008) identified professional development of teachers as part of the national CTE research agenda. Professional development has been linked to teacher retention, relevant curriculum, involvement in professional organizations, and improved teaching and learning (Shumack & Forde; 2008). Wash, Lovedahl, and Paige (2000) argued that teachers must have access to training which deals with current practices and trends in order for beneficial change to occur in the classroom. This study sought to identify Idaho CTE teachers' perceived professional development needs as they pertain to program management.

Theoretical/Conceptual Framework

This study is guided by two theoretical frameworks; first is the framework embraced by Baker and Trussell (1981), Findlay (1992), and Duncan, Ricketts, Peake, and Uessler (2006). As cited by Findlay (1992), the framework these researchers espoused stated,

...the gap between theory and practice could be eliminated by reducing theory to what was needed to perfect the practice (teaching). The prospective teacher would then be trained to reach competence in each of the tasks in order to cope with whatever situation may be encountered in the school of the real world. (p. 28)

In order to reduce theory to what is needed, it is important to determine the professional development needs of those engaged in the teaching profession, including secondary career and technical education teachers.

The second framework was adult learning theory developed by Knowles (1980) and substantiated by Layfield and Dobbins (2002). Knowles surmised that adults have a higher level of learning motivation for that which they perceive a need to learn. Adults will show a disengagement from learning activities for which they do not desire nor feel the need (Knowles, 1980; Layfield & Dobbins, 2002). Knowles also argued as cited by

Layfield and Dobbins (2002), "...adults should be engaged in planning of their learning experiences" (p. 47).

An effective method of identifying professional development needs for teachers and which engages the practitioner in the process is through the application of a descriptive survey based on the Borich Needs Assessment Model (Duncan et al., 2006); Garton & Chung, 1996; Joerger, 2002; Layfield & Dobbins, 2002; . Borich (1980) described a training need as a "discrepancy between an educational goal and trainee performance" (p. 1), and proposed that through discrepancy analysis, educational programs could be assessed and training needs prioritized from a list of valid program competencies. Competencies evaluated are pinpointed by the goals and expected goals of the program under review. Implementation of the model requires subjects of the educational program to review and rate the compiled competency statements according to relevance/importance and level of attainment. The underlying assumption of the model is that the subjects surveyed can best evaluate their performance or competency level and when explicitly asked, can make an objective judgment. Evaluation of the data collected involves "determining *what should be* and *what is*, i.e., between what the teacher should be able to do and what the teacher can do" (Borich, 1980, p. 4).

An instrument based on the Borich model allows researchers to collect and analyze data representing teachers' "perceived level of importance" and "perceived level of competence" of professional competencies that have been identified through research. Evaluating this data will help to prioritize training needs of those completing the instrument; and, in the case of collecting data from professionals in a given field, may serve to determine topics most pertinent to that profession.

Researchers have used different approaches to analyze data collected from an instrument based on the Borich Needs Assessment Model. Garton and Chung (1997) found both the use of a mean weighted discrepancy score (MWDS) and a quadrant analysis evaluation of data were effective methods of identifying educational needs of teachers. While Garton and Chung (1997) compared MWDS ranking to quadrant analysis, Edwards and Briers (1999) compared the ranking of in-service needs as determined by direct assessment to a ranking based on a MWDS. They found that the discrepancy approach was more valid than direct assessment. They suggested that "those responsible for in-service training... prioritize and allocate resources based on mean weighted discrepancy score rankings" (Edwards & Briers, p. 47, 1999).

Recent professional development needs assessment research has been conducted primarily on beginning teachers and in agricultural education (Duncan et al., 2006; Edwards & Briers, 1999; Garton & Chung, 1996, 1997; Joerger, 2002; Layfield & Dobbins, 2002; Mundt & Connors, 1999). Garton and Chung (1996 & 1997) found completing reports for local/state administrators, motivating students to learn, preparing FFA degree applications, and developing an effective public relations program to be the in-service constructs with the highest needs among beginning agricultural instructors. Mundt and Connors (1999) found classroom management/student discipline, time/organizational management, and managing the activities of the FFA chapter to be constructs beginning agricultural teachers identified as the most pressing challenges. Edwards and Briers (1999) found the highest ranked in-service needs to be assisting students in preparing for and succeeding in FFA degree and award programs; using the Internet as a teaching tool; balancing quality time among different life roles such as

teacher, spouse, or parent; and using support groups to publicize the program. Maintaining the usefulness of an advisory committee; utilizing an advisory committee to promote the local agriculture and FFA programs; the ability to use the local advisory committee to acquire resources to sustain the local program chapter; and utilizing advisory committee members as resources for classroom, laboratory, SAE, and FFA activities were identified by Joerger (2002) as the highest in-service needs in his study of beginning agricultural education teachers.

Several agricultural education studies have sought to determine the in-service needs of experienced as well as beginning teachers. Layfield and Dobbins (2002) identified using computers in classroom teaching; preparing FFA degree applications; preparing FFA proficiency award applications; using multimedia equipment in teaching; and teaching recordkeeping skills as the most important in-service needs. They also identified the most important in-service needs of beginning agricultural education teachers to be utilizing a local advisory committee; developing local adult education programs; organizing fund-raising activities for the local FFA chapter; preparing agricultural/FFA contest teams; and developing supervised agricultural educational opportunities for students (Layfield & Dobbins, 2002). Duncan et al. (2006) identified the following as program management in-service needs of agricultural education teachers as being: the need for assistance with advising students who have an interest in post-secondary education, preparing various FFA applications, and developing an effective public relations program.

Research studies in CTE content areas other than agricultural education have not been as numerous. Heath-Camp and Camp (1990) identified three areas of difficulty for beginning teachers: system-related problems such as inadequate orientation, equipment, and supplies; student-related problems such as lack of motivation and undesirable behavior; and personal struggles with self-confidence, time management, and organizational skills. Lu and Miller (2002) found that vocational teachers from Ohio and Taiwan rated as the most important instructional technology competencies as protecting computers from viruses and effectively using desktop video conferencing and tele-teaching technologies for distance learning. Ruhland and Bremer (2002) identified the professional development needs of particular importance to novice CTE teachers as classroom management, curriculum development, and working with special populations. State CTE directors have identified dual enrollment, integration of academics, reading programs, career clusters, and technical skill updating as the professional development needs with the highest priority (Wichowski & Heberley, 2004).

Research Objectives

The purpose of this study was to determine the perceived program management professional development needs of Idaho secondary career and technical education teachers. This was accomplished by using teachers' perceived level of importance and competence as related to specific program management competencies. This information was then used to identify perceived pre-service and in-service needs of this population. More specifically, the following objectives guided this study:

1. Determine the demographic characteristics and educational background of Idaho CTE teachers;

2. Describe Idaho CTE teachers' perceived importance and perceived competence in specific areas of program management; and
3. Determine perceived professional development needs of Idaho CTE teachers in the specific area of program management.

Methodology and Procedures

This study was part of a larger research project designed to assist Idaho CTE staff and university teacher educators in the planning of professional development activities for pre-service and in-service secondary teachers. The CTE program areas included in this study were business and marketing, family and consumer sciences, health occupations, skilled and technical sciences, and technology education. Results of subsequent research findings have been published in peer journals.

A descriptive research design with a survey method was used. Data was collected from secondary CTE teachers employed in Idaho, which described their perceived level of importance and competence across a variety of program management tasks and duties. The 59-item survey instrument was developed and adapted from previous research on agricultural teachers by Duncan et al. (2006). That instrument was modified from previous research in agricultural education based on the Borich Needs Assessment Model (Borich, 1990; Garton and Chung, 1996; Joerger, 2002). Twenty-four of the items were specific to program management. The instrument design allowed teachers to rate the items on two distinct Likert-type scales of perceived level of importance (1=Not Important, 2=Little Importance, 3=Somewhat Important, 4=Important, 5=Very Important) and perceived level of competence (1=Not Competent, 2=Little Competence, 3=Somewhat Competent, 4=Competent, 5=Very Competent).

Faculty from the University of Idaho, University of Georgia, a CTE teacher, and four pre-service business and marketing teachers comprised a panel of experts used to evaluate the instrument for face, content, and construct validity. Reliability coefficient alphas were calculated for the items on both "Importance" ratings ($\alpha = .924$) and "Competence" ratings ($\alpha = .943$). Because of the results, it was determined that the instrument had a high degree of internal consistency. The data collected from this process, along with further review and analysis by the panel of experts, refined the instrument into its final form.

The population for this study consisted of secondary career and technical education teachers employed in Idaho ($N = 725$). Due to the use of a census population, the researchers did not utilize sampling methods. Therefore, generalizability of the findings is limited to the population of this study. The instrument was administered to the population through an online survey using procedures suggested by Dillman (2007). In all, 446 (61.5%) CTE teachers completed the survey instrument.

Collected data were analyzed using Excel™ and the Statistical Package for the Social Sciences (SPSS) software version 19. The importance and competence scores were used to calculate the teacher preparation and in-service needs by calculating a mean weighted discrepancy score (MWDS) for each item. The MWDS score was calculated by subtracting the competency score from the importance score, multiplying that number by the mean importance rating of the item, and then calculating the average of these values across cases (Borich, 1980; Joerger, 2002).

Non-response bias was of concern and examined by the researchers utilizing methodology suggested by previous research (Lindner, Murphy, & Briers, 2001; Miller & Smith, 1983; Radhakrishna & Doamekpor, 2008). Analysis of non-response bias is important in determining if a sample is representative of the population from which it was drawn. For this study, non-response bias was evaluated by comparing the average importance and competence ratings between early respondents ($n = 79$) to late respondents ($n = 34$) through the use of an independent samples t-test. The early responders completed the instrument during the first week of implantation. Late responders were those who submitted surveys after the fourth week. No statistically significant difference was found in the importance ratings between early respondents ($M = 4.03$, $SD = 0.72$) and late respondents ($M = 4.04$, $SD = 0.58$) ($t(111) = -0.072$, $p > .05$). The results of the independent samples t-test comparing competence ratings between early responders ($M = 3.57$, $SD = 0.75$) and late responders ($M = 3.48$, $SD = 0.74$) found no statistical difference between groups ($t(111) = 0.570$, $p > .05$). Based on these findings, the sample data was determined to be representative of the population from which it was drawn.

Findings

Objective One: Determine the demographic characteristics and educational background of Idaho CTE teachers

Demographic findings from this study are displayed in Table 1. Overall, 61.5% ($n = 446$) of the population ($N = 725$) responded to the survey. Business teachers comprised the largest group of respondents ($n = 131$, $f = 29.4$), and female teachers represented 56.3% ($n = 251$) of the respondents. The age group with the highest number of survey participants was 45 to 54 year olds ($n = 144$, $f = 32.3$). Almost half of the teachers' highest level of education was a bachelor's degree ($n = 222$, $f = 49.8$). Nearly half had more than a decade of teaching experience ($n = 215$, $f = 48.3$). Most participants obtained their certification through a traditional university teacher education program ($n = 305$, $f = 68.4$).

Table 1
Demographic Characteristics of Idaho CTE Teachers (n=446 of N=725)

		<i>n</i>	<i>F</i>
Content Area	Business	131	29.4%
	Marketing	15	3.4%
	FACS	86	19.3%
	Health	43	9.6%
	Technology Education	46	10.3%
	Technical Sciences (T & I)	109	24.4%
	Not Indicated	16	3.6%
Gender:	Female	251	56.3%
	Male	192	43.0%
	Not Indicated	3	0.7%
Age:	<= 25	9	2.0%
	25 to 34	65	14.6%
	35 to 44	98	22.0%
	45 to 54	144	32.3%
	55 to 64	124	27.8%
	>= 65	4	0.9%
	Not Indicated	2	0.4%
Education:	High School Diploma	9	2.0%
	2-year Associates degree	26	5.8%
	4-year degree (Bachelor)	222	49.8%
	Masters degree	169	37.9%
	Specialist	16	3.6%
	Doctorate	3	0.7%
	Not Indicated	1	0.2%
Teaching Exp.:	0 (just completed teacher training)	5	1.1%
	1-2 years	59	13.2%
	3-5 years	69	15.5%
	6-10	93	20.9%
	11-20	122	27.4%
	>= 20	93	20.9%
	Not Indicated	5	1.1%
Teacher Training Background* (% based on # of participants = 446):			
	Traditional Undergraduate University Program	305	68.4%
	Graduate Certification beyond Bachelors degree	161	36.1%
	Combined Undergraduate & Graduate Program	102	22.9%
	Substitute Teaching Lead to Full-time Teaching Position	38	8.5%
	Occupational Certification (work exp. plus course work)	159	35.7%
	Alternative Certification (ABCTE, Peace Corps, etc.)	6	1.3%
	No Formal Teacher Training	38	8.5%

*Survey allowed participants to select all the listed options they felt applicable.

Objective Two: Describe Idaho CTE teachers' perceived importance and perceived competence in specific areas of program management

Teachers were asked to rate 24 program management competency statements using the Likert-type scales previously mentioned. As reported in Table 2, the top five statements with the highest means in regards to perceived importance were “Developing relations with fellow teachers and administrators” ($M = 4.51, SD = 0.73$), “Providing guidance and career exploration activities to students” ($M = 4.48, SD = 0.72$), “Develop and maintain required safety standards (State and Federal/OSHA standards)” ($M = 4.34, SD = 0.91$), “Program related trends & current issues” ($M = 4.34, SD = 0.73$), and “Identifying appropriate course textbooks, references, and materials” ($M = 4.31, SD = 0.78$).

In regards to perceived competence and as also reported in Table 2, teachers rated the following statements as the five highest perceived competence “Developing relations with fellow teachers and administrators” ($M = 4.20, SD = 0.82$), “Conducting parent/teacher conferences” ($M = 4.09, SD = 0.90$), “Providing guidance and career exploration activities to students” ($M = 3.85, SD = 0.94$), “Identifying appropriate course textbooks, references, and materials” ($M = 3.84, SD = 0.90$), and “Develop and maintain required safety standards (State and Federal/OSHA standards)” ($M = 3.77, SD = 1.03$).

Table 2

Importance and Competency Ratings of Program Management Construct Items for Idaho CTE Teachers (n=446)

Topic	Importance		Competence	
	M^1	SD	M^2	SD
Developing relations with fellow teachers and administrators	4.51	0.73	4.20	0.82
Providing guidance & career exploration activities to students	4.48	0.72	3.85	0.94
Develop and maintain required safety standards (State and Federal/OSHA standards)	4.34	0.91	3.77	1.03
Program related trends & current issues	4.34	0.73	3.72	0.83
Identifying appropriate course textbooks, references, and materials	4.31	0.78	3.84	0.90
Understanding federal (Perkins), state, and local funding	4.28	0.89	3.31	1.10
Developing an effective public relations program	4.24	0.88	3.44	1.05
Determining CTE program content for specific courses	4.23	0.86	3.75	0.89
Conducting parent/teacher conferences	4.17	0.98	4.09	0.90
Evaluating a CTE program	4.14	0.87	3.55	0.98
Grant writing & funding opportunities	4.13	0.99	2.84	1.19
Developing curriculum-based School-to-Work and/or School-to-Career activities	4.12	0.93	3.30	1.18
Issues involved with traveling with students	4.09	1.01	3.59	1.14
Establishing & using a program advisory committee	4.09	0.93	3.65	1.05
Coordinating activities with local organizations/agencies	4.08	0.94	3.39	1.09
Recruiting/promoting student involvement with CTSOs	4.03	0.99	3.44	1.11
Establishing and organizing co-op/internships	4.00	1.03	3.11	1.20
Integrating CTSO activities into the regular classroom	3.90	1.05	3.32	1.12
Fundraising for CTSOs	3.85	1.11	3.19	1.20
Career Clusters & Programs of Study / Pathways	3.83	0.99	3.55	0.96
Completing reports for local and state agencies	3.79	1.17	3.62	1.03
Conducting needs assessments to determine Programs of Study / Pathways	3.72	0.98	3.25	0.97
Planning and conducting student field trips	3.72	0.98	3.67	1.03
Conducting an adult program	2.90	1.27	3.02	1.30

¹Scale of 1=Not Important, 2=Little Importance, 3=Somewhat Important, 4=Important, 5=Very Important.

²Scale of 1=Not Competent, 2=Little Competence, 3=Somewhat Competent, 4=Competent, 5=Very Competent.

Objective Three: Determine perceived professional development needs of Idaho CTE teachers in the specific area of program management

Professional development need is represented by the mean weighted discrepancy score (MWDS) as reported in Table 3. The highest rated program management professional development training need was “Grant writing and funding” (MWDS = 5.35), followed by “Understanding federal (Perkins), state, and local funding” (MWDS = 4.22), “Establishing and organizing co-op/internships” (MWDS = 3.52), “Developing an effective public relations program” (MWDS = 3.37), and “Developing curriculum-based School-to-Work and/or School-to-Career activities” (MWDS = 3.36) respectively.

Table 3

Program Management Priority Areas for Professional Development of Idaho Secondary CTE Educators

Topic	Rank	MWDS ¹
Grant writing and funding opportunities	1	5.35
Understanding federal (Perkins), state, and local funding	2	4.22
Establishing and organizing co-op/internships	3	3.52
Developing an effective public relations program	4	3.37
Developing curriculum-based School-to-Work and/or School-to-Career activities	5	3.36
Providing guidance & career exploration activities to students	6	2.82
Coordinating activities with local organizations/agencies	6	2.82
Program related trends and current issues	8	2.71
Fundraising for CTSOs	9	2.57
Develop and maintain required safety standards (State and Federal/OSHA standards)	10	2.49
Evaluating a PTE program	11	2.44
Recruiting/promoting student involvement with PTSOs	12	2.36
Integrating CTSO activities into the regular classroom	13	2.31
Determining PTE program content for specific courses	14	2.07
Issues involved with traveling with students	14	2.07
Identifying appropriate course textbooks, references, and materials	16	2.06
Establishing and using a program advisory committee	17	1.85
Conducting needs assessments to determine Programs of Study / Pathways	18	1.75
Developing relations with fellow teachers and administrators	19	1.42
Career Clusters and Programs of Study / Pathways	20	1.05
Completing reports for local and state agencies	21	0.69
Conducting parent/teacher conferences	22	0.35
Planning and conducting student field trips	23	0.19
Conducting an adult program	24	-0.33

¹Mean Weighted Discrepancy Score.

Conclusions, Discussion, and Recommendations

The purpose of this study was to determine the perceived professional development needs of Idaho secondary career and technical education teachers using a modified version of the Borich Needs Assessment Model adapted from previous research in agricultural education (Duncan et al., 2006). Idaho CTE administrators, university teacher educators, local school district administrators, and CTE teachers should consider the findings during the planning of pre-service curriculum and in-service programs. Findings should be a complimentary tool in this planning. Other needs assessment tools should also be considered when developing professional development activities. Perceived needs may be different from actual needs. Teachers may perceive that an item is not a professional development need, whereas other CTE professionals such as state administrators and university teacher educators could think differently.

As reported in the findings section; the highest rated perceived professional development need was “Grant writing and funding opportunities” followed by “Understanding federal (Perkins), state, and local funding”, “Establishing and organizing co-op/internships”, “Developing an effective public relations program”, and “Developing curriculum-based School-to-Work and/or School-to-Career activities”. “Developing effective public relations program” has been identified by previous research in agricultural education (Garton & Chung, 1997).

Because of the economic slowdown, Idaho educational programs, and specifically CTE programs, have faced declining financial support from public funding sources. This phenomenon is not unique to Idaho and reflects national trends in educational financing. The findings of this study make it clear that CTE teachers have an interest in pursuing funding sources other than the status quo. By providing professional development activities which help teachers acquire the knowledge and skills necessary to identify and secure financial resources, teacher educators and state CTE staff can help to ensure vibrant and effective programs that meet the needs of the students served. It should be noted that the ability and effectiveness of meeting this professional development need might be negatively affected by budget reductions at teacher preparation institutions and the state CTE division.

A perceived need for training such as “Grant writing and funding opportunities” should raise concerns about the viability and sustainability of CTE programming through the public school system. Since the Smith-Hughes Act of 1917, CTE has been supported through public funding at the federal level. This funding has been continued by recent legislation such as the Perkins Act (Phipps, Osborne, Dyer, & Ball, 2008). Historically, Idaho has also financially supported CTE programs. The CTE profession should be concerned with future funding trends related to the viability and sustainability of programs and curriculum. Teachers should be applauded for having an interest in securing supporting funds for their programs; however, if implemented, this effort could potentially reduce instruction and curricular development activities. It should also be of concern the competitive nature of grant applications. Because of the grant writing process, CTE professionals must consider whether this will lead to greater inequity across programs.

It can be argued that two of the remaining top five perceived professional development needs, “Understanding federal (Perkins), state, and local funding” and “Developing an effective public relations program”, are related to the highest rated need.

These two perceived needs as with “Grant writing and funding opportunities” relate to sustainability of programs. An effective teacher will have an understanding of funding sources for the program. That teacher will be able to use program resources such as an advisory committee and a group of parents to use our democratic process in securing funding. It is also important to have an effective public relations program in order to demonstrate to the community the benefits of the CTE curriculum.

Two of the top five perceived in-service needs were related to program curriculum development: “Establishing and organizing co-op/internships” and “Developing curriculum-based school-to-work and/or school-to-career activities”. Educators understand the importance of providing students with opportunities that will prepare them to successfully complete a post-secondary degree or enter the workforce. In this age, it is of the utmost importance to provide teachers with the resources necessary to effectively prepare students to meet global employment demands.

Except for the field of agricultural education, a review of pertinent literature failed to discover research using similar methodology in CTE as a whole or in specific content areas from other states. Therefore, it is difficult to compare the results of this study with the professional development needs of CTE teachers in other parts of the United States. Because of the lack of program management professional development research in CTE content areas outside of agricultural education, the methodology of this study may serve as a guide for other researchers, and the findings used for comparison. In summary, the following are specific recommendations from this study:

- Teacher educators, state CTE staff, teachers, and other educational professionals with a stake in Idaho career and technical education should use the results of this study as a guide in the development of future professional development activities;
- CTE researchers in other states should use this study, and similar studies from agricultural education based on the Borich model, to conduct thorough professional development needs assessments across all content areas of CTE;
- Researchers should use the results of this study as a guide to determine the specific content of professional development activities in order to meet the perceived professional development needs;
- Follow-up evaluations should be conducted in order to determine the effectiveness of any implemented professional development activities to meet the perceived needs;
- Researchers should conduct studies to determine the best practices for providing training which addresses the perceived professional development needs; and
- CTE staff, teacher educators, teachers, and educational professionals with a stake in Idaho CTE programming, should develop a timeframe to conduct future in-service needs assessment.

The professional development of CTE teachers has been identified as an important priority of the national CTE research agenda (Lambeth et al., 2008). The findings of this study are informative to those involved with the preparation and professional development of CTE educators in Idaho, and serve to contribute to the identification of national trends concerning the professional development activities perceived as important by in-service secondary CTE practitioners.

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