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An Update: Preparation and Credentialing Requirements of Two-Year College Technical Instructors: A National Study

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Abstract

This study was conducted to see what changes have occurred in the preparation and credentialing of postsecondary technical faculty. The specific objectives of this study were: (a) to describe current credentialing requirements for two-year college technical instructors; (b) to describe program requirements for postsecondary technical teacher education programs; and (c) to compare changes that have occurred since prior studies. Since 1990 there has been a decline in the number of states that have credentialing requirements—down from 19 to 11 in 2006. The number of programs that prepare postsecondary technical faculty appears to be stable at a time of anticipated shortage of two-year technical faculty.

Introduction

Community colleges have a long history of providing programs that offer students traditional college level courses that lead to an associate's or applied degree—programs that prepare students for further study toward a bachelor's degree and that also prepare

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students for careers (Kasper, 2002). The historical role of two-year colleges, then, can be viewed in terms of educational tracks or paths: academic and career. Moreover, community or two-year colleges continue to afford students open access to higher education and to employment and careers, what can be referred to as workforce education and training. Kasper notes that "historically, community colleges have provided a gateway to opportunity for many young people who otherwise would have been denied access to higher education" (2002, p.16). An extension of high schools in its earliest incarnation, two-year occupational education has grown to increasingly provide another option beyond preparing to transfer to baccalaureate programs in colleges and universities or to enter the workforce with a "terminal" degree.

Community colleges today are comprehensive institutions providing occupational education and training from refrigeration technology to nursing through liberal arts transfer courses. They also provide adult education for their communities, short-term training programs for business and industries, and remedial education for those who want and need it. These institutions' primary mission is teaching and learning, not research (Grubb & Associates, 1999). The community college is the one educational institution simultaneously providing initial preparation for work, retraining and upgrading the skills of older workers, and second-chance training for individuals who need some combination of basic academic education and technical skills (Moore, 1997).

"Two–year colleges are a major contributor to higher education and have become the largest pipeline to postsecondary education in the United States" (H.R. Res. 2936, 1992, as cited in Zinser & Hanssen, 2006, p. 31). Community college faculty constituted 40% of all US higher education faculties (National Center for Educational Statistics (NCES), 2001). Additionally, 46% of all higher education students—a third of whom represent minority groups—are community college students. There is a unique opportunity for change in the community college sector with one-third of faculty expected to retire in the next decade (Rosser & Townsend, 2006). Most (51%) chief academic officers feel it will be "difficult recruiting fully prepared faculty members" (Berry, Hammons &

Denny, 2001, p. 133) to replace those retiring. Community college faculty are an aging, diverse population that serve the diverse needs of their student population. Gahn and Twombly's 2001 study found that community college faculty kept the same job an average of 14.5 years, with most (44%) coming from business and industry prior to teaching in community college. They further found the master's degree to be the "terminal" degree requirement for teaching in the community college overall. This is not the case, however, for those in technical programs where the bachelor's degree is sufficient (Palmer, 2000).

Community College Teaching

Relatively little is known about two-year college faculty because its members are understudied as a group (Rosser & Townsend, 2006). In fact, for an institution that sells itself as a teaching/learning institution, there has been little research conducted on teaching and learning in the community college (Levin, Kater, & Wagoner, 2006; Townsend, 2004).

"The quality of the education in the community junior college depends primarily on the quality of the staff" (O'Banion, 1997, p. v). Tsundo (1992) posits that community college teaching is one of the most difficult jobs in higher education today, with these institutions being held accountable for the product that they produce. Seymour and Hewitt (1997) report that, "poor quality teaching in subject matter expert classes [was] by far the most common complaint of all program switchers and non-switchers. Poor teaching was mentioned by almost every [science program] switcher (90.2%)" (p. 146).

Additionally, classroom-level studies point to a persistent gap between faculty members' expectations of students and the kind of work that their students are prepared to do. Indeed, community college instructors who are deeply committed to their students and to the work of teaching (Kozeracki, 2002; Outcalt, 2002), have, in a number of studies, described their students as not academically prepared (Copa, Plihal, Birky, & Upton, 1999; Kozeracki, 2002). Research also reveals that some instructional responses indicate varying levels of preparation that, while well intended, can exacerbate the problem (Grubb & Associates, 1999; London, 1978).

Technical Faculty

Community college technical and engineering faculty need to have knowledge and experience in their technical specialties, including having requisite mathematics and science knowledge and skills. Faculty also need to know how to design, deliver and evaluate curriculum and instruction, and they need to know how adults learn. Given the increasing diversity (e.g., racial, gender, socioeconomic, ability, educational readiness, motivation, and age) of the student population and the accelerating rate of technological change, there seems to be no one best teaching style. Effective teaching is dependent upon the instructor's ability to adapt a range of teaching methods to meet a variety of needs and ends (Grubb & Associates, 1999). If, "most faculty in two-year institutions arrive at their new positions not knowing how to design or facilitate learning experiences" (Copa, et al., 1999, p. 35), then how do we best prepare faculty with this knowledge and skill-base?

"Technical colleges are being faced with the increased number of teacher vacancies due to retirements, teacher's decisions to leave the teaching profession, and growth in career and technical education programs to meet employment demands" (Ruhland, 2001, Abstract section, para. 1). The increasing shortage of teachers in career and technical education fields merits a considered examination (Bartlett, 2002). According to the *Occupational Outlook Handbook* (Bureau of Labor Statistics, 2006) postsecondary career and technical education is one of the fastest growing careers. Technical job areas showing the highest growth are in database administration, personal care and home health aides, medical assistants, physician assistants, and health information. Increased student enrollments in these technical areas that require an associate degree will create a greater demand for community and technical college level faculty. Technical enrollments in community colleges align with this trend.

Nock and Shults (2001), in their research brief, list the top job preparation areas in the nation's community colleges. Allied health programs represent 46.6% of all programs; 19.6% of which are in registered nursing programs. Grubb (2005) indicates that, currently, occupational enrollments in community colleges are 29% business,

22% health occupations, 12% engineering and science technologies, and 5% computers/data processing. To keep pace with emerging technologies, community colleges continually create new programs that include information technology, biotechnology, and Web-based occupations. While there is a high demand for technical faculty in these technical areas, the pressing question remains: how well prepared are these faculty to teach?

Credentialing of Faculty

Past studies (Arizona State Board of Directors for Community Colleges, 1994; Bartlett, 2002; Delzer, 1972; Olson, et al., 2001; Olson, 1991) found few states having credentialing requirements for two-year technical faculty. A study conducted by the Certification Study Committee (Arizona State Board of Directors for Community Colleges, 1994) found the following states to have formal certification requirements for two-year college vocational faculty: Colorado, Idaho, Iowa, and Wisconsin. Additional findings indicated that the following states had standards for community college faculty: Alabama, California, Connecticut, Georgia, Hawaii, Illinois, Iowa, Maryland, Minnesota, Nevada, New Jersey, Virginia, West Virginia, Wisconsin, and Wyoming. Arizona, the state that initiated certification for community college faculty, requires its entire community college faculty to take a course on the community college prior to or early in their teaching career.

Bartlett (2002) notes that the Council for Higher Education Accreditation (CHEA) regional accrediting agencies expect faculty to have a minimum of 18 graduate semester credits in the subject they teach in programs where students are expected to transfer from a two-year college to a four-year college. This requirement principally applies to teachers of academic subjects rather than to those in technical programs with students earning applied associate degrees.

The State of Washington Vocational/Technical Council (VTC) received funding and support from the Washington State Board for Community and Technical Colleges to develop statewide standards for technical faculty (Goldstein, 2000, as cited in Wolff, 2003). They defined technical instructors as

more than content specialists or practitioners of previous occupations. They teach in a knowledge-based economy to diverse learners with multiple needs and expectations and require a different preparation than offered in previous vocational instructor development. [These] faculty must now be computer literate, software smart, and people sensitive. (Goldstein, 2000, p. 3, as cited in Wolff, 2003, Definition section, para. 2)

Description of Study

This study was conducted as a follow-up to earlier studies (Olson, et al., 200l; Olson, 1991). The specific objectives of this study were: (a) to describe current credentialing requirements for two-year college technical instructors; (b) to describe program requirements for postsecondary technical teacher education programs; and (c) to compare changes that have occurred since the prior Olson studies (Olson, et al., 2001; Olson, 1991).

Methodology

This was a descriptive study. Data for this study were collected through e-mail communication. Representatives of appropriate state governing boards (n=50) were contacted with a request for information that would describe the current credentialing requirements for postsecondary technical instructors in each and every state. Follow-up e-mail correspondence was then sent or a telephone call made to representatives in those states that did not respond to an initial request for information (non-respondents), or where clarification was needed to determine the current status of postsecondary technical educator credentialing in the state in question. The web was used to initially locate and identify state representatives in appropriate state governing boards and to clarify or verify information. The web was also used to locate the current minimum educational requirements for two-year college technical instructors, current degree programs available that prepare two-year college technical instructors, and the current bachelor's and master's degree requirements for programs that prepare two-year college

technical instructors. This research study was conducted during the fall and spring of 2006. The research questions were as follows:

Phase 1: State Credentialing Requirements
1. How many states require credentialing of two-year college technical instructors?
2. What are the minimum educational requirements for two-year college technical instructors?
3. How have current credentialing requirements changed since the Olson, et al., (2001) and earlier (Olson, 1991) studies on credentialing?

Phase II: Postsecondary Technical Teacher Education Requirements
4. What degree programs are available to prepare two-year college technical instructors?
5. What are the coursework requirements in postsecondary technical teacher education programs?
6. How have postsecondary technical teacher education program requirements changed since the Olson, et al., (2001) and earlier (Olson, 1991) studies?

Procedures
During Phase I, all 50 state governing boards were contacted via e-mail communication and/or follow-up telephone call to request information toward answering questions 1, 2 and 3 outlined above. The web was then used to locate and identify information toward answering questions 4, 5 and 6 (current degree programs that prepare two-year college technical instructors, current bachelor's and master's degree coursework requirements for programs that prepare two-year college technical instructors). Programs were selected based upon the programs included in the Olson, et al., (2001) study that were clearly identified by titles as related to postsecondary technical teacher education programs. Secondary vocational education teacher preparation programs or secondary technology teacher preparation education programs were not included in this research study.

Findings

Phase I: State Credentialing Requirements

Data for all 50 states were located and examined at respective state education websites, with follow-up e-mails and phone calls accounting for 100% participation in providing information on credentialing requirements for postsecondary technical faculty in each of the 50 United States. Overall, fewer states have prescribed credentialing requirements since 1990, with only 22% (n=11) of the states having credentialing requirements. Of the 11 states found to have credentialing requirements in 2006, seven states (64%) require licensure of postsecondary technical college instructors with no additional minimum educational requirement (see Table 1).

Four (36%) of the 11 states require licensure of postsecondary technical instructors and also offer a bachelor's degree program in technical teacher education. Five states offer a bachelor's degree program in technical teacher education but do not confer licensure. In addition, two of the four states (Idaho & Minnesota) that require licensure and offer bachelor's degree programs in postsecondary technical teacher education also offer master's degree postsecondary technical teacher education programs. Three states (Michigan, Ohio and Utah) offer bachelor's and master's degree programs in postsecondary technical teacher education but do not confer licensure. Further, two states out of the nine included in the longitudinal (1990, 1998, & 2006) comparison of state minimum educational requirements, require a master's degree (Note: a master's degree is the minimum educational requirement in *Academic Areas* in Arizona) (see Tables 2 and 3).

A bachelor's degree is the minimum educational requirement in two states in 2006. Two states report that an associate's degree meets the minimum educational requirement for two-year college technical instructors. South Dakota signifies that "less than a Bachelor's degree" is acceptable in trade and industry or health occupations, with three years additional work experience a requirement for employment. Three states indicate that the minimum educational requirement could be a high school diploma (or equivalent), with work experience a condition of employment (range = 5-8 years).

Table 1.

1990, 1998 and 2006 Comparison of States Credentialing and Non-Credentialing

Non-Credentialing (n=39) + Dist of Columbia & Guam			1990	1998	2006
Alabama	Louisiana***	Ohio	62%	66%	78%
Alaska	Maine	Oklahoma			
Arkansas***	Maryland	Pennsylvania			
California***	Massachusetts	Rhode Island			
Connecticut	Michigan	South Carolina***			
Delaware	Mississippi***	Tennessee			
D.of Columbia	Montana	Texas			
Florida	Nebraska	Utah			
Georgia	Nevada	Vermont			
Guam	New Hampshire	Virginia***			
Hawaii***	New Jersey	West Virginia			
Illinois	New Mexico	Wyoming			
Indiana	New York				
Kansas	North Carolina				
Kentucky***					

Credentialing (n=11)	1990	1998	2006
Arizona*	38%	34%	22%
Colorado*			
Idaho*			
Iowa*			
Minnesota*			
Missouri*			
North Dakota**			
Oregon**			
South Dakota*			
Washington*			
Wisconsin*			

Notes. ***Credentialing in 1990, 1998 and in 2006. **States requiring credentialing in 2006 but not in 1998. ***States requiring credentialing in 1998 but not in 2006. The District of Columbia and Guam are new populations included in the 2006 comparison. Nine states that required credentialing in 1990 and 1998 still credential in 2006. Eight states that required credentialing in 1998 no longer have formal requirements in 2006. Additionally, two states that did not credential in 1998 have credentialing requirements in 2006.

Table 2.

Comparison 1990, 1998, and 2006: Minimum Educational Requirements

Educational Requirement	1990	1998	2006
Master's Degree	NA	NA	2
Bachelor's Degree	3	5	2
Associate's Degree	4	2	2
High School Diploma	6	10	3

Table 3.

Comparison 1972, 1990, 1998, and 2006: Minimum Educational Requirements for Two-Year Instructors

Year	Education Requirements	Mean Years of Work Experience[1]	Tech. Ed. Credit
1972	HS=3 18 months training 2 years postsecondary ed. =2 AA=2 18 semesters of math and science=1	3.67	Most (67%) did not require any technical education. Those that did (33%) only required workshops or 12 semester hours.
1980	HS=5 AA=3 Bachelor's=1	4.22	Most (77.78%) required some coursework at this point with an average of 10.57 semester hours.
1998	HS=3 AA=2 Bachelor's=2	6.75	One state required a course on the Two-Year College. More varied course and workshop requirements depending on what was being taught.
2006	HS=3 AA=2 Bachelor's=3 Master's=1 No specified=2	4.0	Most (77.78%) required some coursework/ workshop credit at this point with an average of 21.29 semester hours. Again it depended on what was being taught and the purpose (terminal or transfer).

Sources: Delzer (1972); Olson (1991, 2001). *Notes:* *Courses in the community college; OCE = Occupational Competency Exams; HS = High School; PS = Postsecondary Education; A.A. = Associate Degree in Applied Science. For education level requirements the lowest level required was used. Nine states were reviewed. 1 For those states that reported required work experience.

The state of Minnesota, which required an associate's degree in both 1972 and 1990, reports that the minimum educational requirement in 2006 varies with the occupation taught, specifically listed as "license fields." Arizona's minimum educational requirement in *Occupational Areas* is five years work experience in the field to be taught, in conjunction with a high school diploma. Conversely, in *Academic Areas*, a master's degree is the minimum educational requirement—a notable distinction. The state of Idaho will subtract four years off the eight years work experience requirement with a college degree.

Phase II: Teacher Education Programs

In Phase II, using reviewed programs listed in the *Directory of Industrial and Technical Teacher Education Programs* (Schmidt & Custer, 2006-07), particular attention was paid to programs reviewed during earlier studies (Olson, et al., 2001; Olson, 1991). Programs were also reviewed to see if the programs truly served the mission of postsecondary technical teacher preparation. Twenty-three programs (13 master's programs and 10 bachelor's programs) were found that indicated their mission (full or in-part) was to prepare postsecondary technical faculty for the two-year college (public and proprietary) and often training in business and industry (another related adult population). Titles of some programs have changed between 2000 and 2006 (e.g., Vocational Education to Education and Human Resource Studies; Occupational/Workforce to Career and Technical Education) (see Table 4).

All undergraduate degree programs reviewed (n=10) require an instructional techniques course, while most (90%) require instructional technologies applications and adult learning and development theory (80%) courses. The majority of the programs (70%) also require coursework on assessment/evaluation and curriculum development. Few programs had a required practicum or a specific course requirement on training and development (30-40%). Over the past 16 years (1990-2006), there has been an increase in the number of programs requiring coursework in instructional technology applications, adult learning and development and

assessment/evaluation. However, fewer programs are requiring a practicum as a capstone course. No programs reviewed currently require coursework on the two-year college or occupational employment experience (see Table 5).

Table 4

Summary of Teacher Education Programs that Train Two-year Instructors (n=23): 2006

Titles Used for Degree Programs	
Bachelor's (B.S.); n=10	Occupational Studies; Technical Education (TCED)(n=3) Professional-Technical Teacher Education Resource Studies; Specialization: Adult Education & Training; Career and Technical Teacher Education: Vocational-Technical Ed Private or Public Sector Options; Career and Technical Education; Occupational Training & Development; Technical, Trade and Industrial Ed. (Postsecondary Option); Career, Technical Ed. and Training
Master's M.S.; M.Ed.; n=11	Community College Teaching; Teaching, Learning and Leadership: Occupational Education Studies; Technical Teacher Education; Workforce Education & Development; Technical Education; Occupational Studies; Education and Human Adult Education and Training; Instructional Technology

Notes: n=30 programs among 13 institutions listed. These are the same institutions reviewed in 2000 (Olson, et al., 2001), with 18 programs.

Table 5

Comparisons of 2006 Summary of Bachelor Degree Requirements

Course	1990 (n=16)	1998 (n=9)	2006 (n=10)	Common Title Terms	Trend
Instructional Techniques	100.0	100.0	100.0	Instructional Design, Techniques, Methods	=
Instructional Technology Applications	64.7*	88.9*	90.0	Instructional Technology, Computers, Ed. Technology	+
Adult Development & Learning	41.2	66.7	80.0	Adult Education, Learning, Principles	+
Assessment/ Evaluation	55.6	70.6	70.0	Needs Assessment, Evaluation, Assessing Students	=
Curriculum Development	94.1	100.0	70.0	Curriculum Design, Occupational Analysis, Program Development, Course Construction	−
Practicum	82.4	100.0	40.0	Student Teaching, Internship, Exit Experience	−
Training and Development	23.5	77.8	30.0	Training	−
Occupational Employment Experience	52.9	22.2	0.0	Work Experience	−
Two-Year College	17.7	0.0	0.0		−

Notes= Combines Computer Literacy and Media Methods*

Of the 13 master's programs that prepare postsecondary technical instructors, all require coursework in research, curriculum, and instructional techniques. Most programs require a foundational course in the history/philosophy of career and technical education (76.9%) and adult learners (61.54%). Coursework in evaluation of learners (20.76%) and the two-year college (15.38%) are less frequently required in the 13 master's programs reviewed (see Table 6).

Table 6

Comparisons of 2006 Summary of Masters Degree Requirements

Course	1990 (n=16)	1998 (n=9)	2006 (n=10)	Common Title Terms	Trend
Research	100.0	100.0	100.0	Research Methods, Design, Techniques, Inquiry	=
Curriculum	85.7	100.0	100.0	Program Development, Curriculum Development, Occupational Analysis, Systems Design	+
Instructional Techniques	85.7	100.0	100.0	Methods, Techniques, Fundamentals	+
Supervision/ Leadership	57.1	22.2	100.0	Administrative, Leadership, Supervision	+
Survey of Occupational Education	85.7	22.2	76.9	History, Philosophy, Foundations, Principles Vocational, Occupational, Workforce Education	+
Adult Learners	28.6	44.4	61.54	Adult Learner, Education	+
Evaluation of Learners	28.6	44.4	20.76	Evaluation, Assessment	-
Two-Year College	28.6	11.1	15.38	Two-Year College	+

Discussion and Conclusions

There continues to be confusion between secondary career-technical education and postsecondary (two-year college) technical education when it comes to the examination of credentialing requirements and teacher preparation. Research findings point to credentialing as a rarity, and, where states do have credentialing requirements, they are not always clear.

Previous scholarship also suggests that the acceptable minimal level of education needed to credential entry level faculty is creeping up on this faculty population, perhaps due to the larger pool of educators continuing their education due to articulation agreements, on-line programs, and degree completion programs. During this review, one state indicated that it now requires a master's degree as a minimal degree for credentialing—this was not the case during the last two reviews wherein no states required a master's degree. Regional accreditation requires those teaching in programs that are intended for transfer to four year institutions to have 18 graduate credits in the field in which they are teaching. Perhaps, then, the role of credentialing or of the institutions has changed. More two-year college technical programs are involved in having their students continue their education beyond the two-year degree, much like high school career technical programs and tech prep programs that have been pushing students to continue their education beyond high school.

Changes in course requirements for undergraduate programs reflect an earlier trend observed in 2001 (Olson, et al.) concerning the increasing additions of adult learning theory and instructional technologies courses in postsecondary technical teacher education programs. The large percentage of these courses represented in program curricula is reflective of studies that point to the required competency needed for postsecondary technical faculty. Additionally, in reviewing the existing postsecondary technical teacher education programs, it was not clear how or if students could transfer some or all of their terminal associate degree coursework to bachelor's degree programs. What is clear, however, is that more

programs are preparing postsecondary technical instructors than states requiring credentials.

Some important questions emerge, then, in relation to those who complete teacher education programs that de-emphasize the professional needs of two-year college faculty:

- How successful are teacher candidates in finding teaching positions?
- How long, on average, do these teachers stay in teaching positions?
- Do these teachers stay longer than those without such professional preparation?
- What advantages do states with credentialing requirements have over those states without such requirements?

Ruhland (2001) found that technical faculty that left the two-year college had career goals of completing a bachelor's or master's degree. Research findings indicated that a lack of teacher preparation was a factor for those who left the profession. Ruhland's study was conducted in Minnesota—a state with both postsecondary technical teacher education programs and credentialing requirements.

It is important to note that numerous institutions offer a certificate in community college teaching or college teaching. The majority of these programs, however, do not focus on the professional development needs of technical faculty in the two-year college (Haworth & Wilkin, 2004). Clearly, the population from which we lack needed research and evidence is this segment of educators in higher education: those who teach community college students (Outcalt, 2002).

Olson, et al., (2001) state that, "historically, states have had little involvement in the credentialing of postsecondary technical instructors" (p. 65). Moreover, Bartlett (2002) reports that the majority of educational activity (i.e., teacher preparation, licensure and certification) is found at the secondary level, not at the postsecondary level. Equally troubling is the challenging issue of how to construct a foundation in academic and occupational skills that allows students to enter a workplace with technical skills *and* that also provides the option to continue their education toward a

bachelor's degree (Zinser & Hanssen, 2006). Essentially, if postsecondary education—in collaboration with local companies and industries—sees the benefits and need for certification programs for students, why is there no sense of urgency toward ensuring the credentialing of those entrusted with their education?

With the growing cost of higher education and greater accountability expected for higher education outcomes (CHEA, 2007), perhaps these movements will guide what we expect of two-year college faculty and how they are to be prepared. The focus on higher education outcomes and implications for the field and practice lead to still more questions: what should an educated person with an associate degree know and be able to do in general? With a four year degree? And, what general knowledge and skills need an instructor have?

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