USE OF THE DELPHI TECHNIQUE TO DERIVE A COMMON DEFINITION FOR WORK-RELATED EDUCATION

By

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Abstract of Dissertation Presented to the Graduate School
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USE OF THE DELPHI TECHNIQUE TO DERIVE
A COMMON DEFINITION FOR WORK-RELATED EDUCATION

By

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Chair: David S. Honeyman
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This study was designed to (a) test if work-related education conformed to O'Banion's six principles for the learning college and (b) if the principles could be supplemented with other components of work-related education. The central point was to further the knowledge of these relationships, which in total could be modeled to derive a common definition for work-related education at community colleges.

A three-round Delphi technique was conducted to seek levels of agreement and consensus on O'Banion's principles and seven components associated with work-related education. The Round 1 sample (n=20) attrited by Round 3 (n=15) to six CEOs and nine administrators from community colleges whose CEOs were represented on the League for Innovation's board of directors.

Content validity was essentially built-in by the development of the content of the scale matching the content domain, as conveyed by the participants' responses and what they considered to be the constructs of interest. Internal validity claims were met by

following the established procedures for the Delphi technique to answer inferential questions about the scores and to develop well-founded conclusions from the data. A Duncan's multiple-range test confirmed significance between Round 1 and Round 3, which combined with the research procedures and study attributes, validated reaching a superior group view.

Review of the quantitative and qualitative data over the three rounds revealed levels of agreement and consensus on the principles and the components. Correlation coefficients were organized to facilitate comparisons between the principles and the components for significance. Significant correlations were found between the principles and six of the seven components. There was specific commonality found among the funding component and the coordination and planning component across the majority of the principles. The correlations were modeled to derive a common definition for work-related education.

Results of this study suggest that such a prototype model and further research could facilitate a consolidated position and common definition for work-related education. The study's conclusions have implications for why community college leaders and policymakers should pursue a common definition for work-related education within a national context to uphold the community colleges' role as "preparers of the nation's workforce."

CHAPTER 1
INTRODUCTION

Background for the Study

The central and comprehensive role that community colleges fulfilled in preparing America's workforce this past century and continue to accomplish into the new millennium has been most apparent. Indeed, work-related education was a key aspect of the community college mission from its beginnings. In the early 1900s, Witt, Wattenbarger, Gollattscheck, and Suppiger (1994) pointed out in *America's Community Colleges: The First Century*:

> Whereas universities molded students to fit their classical curricula, two-year colleges adapted to meet the needs of a changing nation. They created vocational, technical, and preprofessional programs to train skilled workers, from nurses to keep people healthy, to mechanics to keep people mobile. (p. 3)

In recent years, the work-related education mission of community colleges evolved, as substantiated by Bragg (2001): "Modern community colleges have a major responsibility for preparing the nation's current and future midskilled workforce, which accounts for three-fourths of all employees in the United States" (p. 5). As reported by the Department of Labor, occupations requiring a postsecondary vocational award or an academic degree accounted for 29 percent of all job growth in 2000 and will account for 42 percent of total job growth from 2000 to 2010 (Bohlen, 2004, p. 4). The National Center for Education Statistics (NCES), and the Education Commission of the States (ESC), and the Center for Community College Policy (CCCP) reported that about half of the 565,000 associate degrees (National Center for Education Statistics [NCES], 2001)

and the greater part of the 165,000 advanced certificates (Center for Community College Policy [CCCP], 2002) awarded annually were in work-related fields, including nursing, business, and engineering technology.

However, defining work-related education as a national model has been difficult because of the lack of agreement about what was salient to all or most of work-related education, including how policy was made and funding was channeled. In addressing the Annual Economic Forum in Scranton, Pennsylvania, Dr. Patricia Donohue, president of Luzerne Community College, advised panel members that "this country doesn't have a definition for what workforce development is, and we don't have a workforce policy. We don't have it nationally. We don't have it at the state [level]. We don't have it locally" (Donohue, 2004, p. 9). Contributing to the lack of a common definition was the wide range of individuals who sought work-related education from diverse backgrounds with varying purposes and outcomes. This range included high school and technical center graduates, current and transitioning employees, immigrants, as well as adults in continuing education. Donohue emphasized the difficulty in trying to define the broad mission of work-related education noting that "[it] could mean anything . . . from how do we help a welfare person get basic skills to how do we help a double Ph.D. get a new skill for the highest tech thing and everything in between" (p. 9). Another contributing factor during the past 20 years has been the attempt of legislators "to address the issue by funding work-related education through 382 pieces of federal legislation, not to add on all the state legislation" (Donohue, p. 9).

Community colleges, individually and collectively, have never been static institutions, and they have demonstrated great flexibility and creativity in response to

student needs, work-related education expectations, and governmental requirements. At the same time, the varying and vast descriptions and labels, as well as the categorical funding and the multiplicity of funding streams, have made it difficult for community colleges to maintain consistency in their work-related education programs and to establish new programs based on emerging workforce needs.

Part of the disconnection between community colleges and their stakeholders perpetuates itself with the seemingly ever-changing terminology used for work-related education. In the case of "vocational education," it would seem the terminology for work-related education has come full circle from the early 1900s to the new millennium. In 1918, Floyd McDowell published the "first known dissertation" of the "first national study of junior colleges," and it was noted "that 17 percent of the work offered by public junior colleges was vocational" (Witt et al., 1994, p. 41). The phrase "career studies" was the in vogue terminology for work-related education in Cohen and Brawer's (1996) *The American Community College* (third edition). By the fourth edition, however, "vocation-technical" or simply "vocational education" was again the preferred terminology (Cohen & Brawer, 2003, pp. 222). In fact, during the past century many different terms have been used as labels for work-related education, such as "Occupational, career, technical, or technological, semiprofessional, subbaccalaureate, and terminal with each of these labels having a slightly different but admittedly related intent" (Bragg, 2001, p. 6). Consistency in describing, labeling, and defining work-related education had yet to be achieved during the 100-plus years that community colleges have existed. Bragg referred to another set of terminology associated with work-

related education in the 1990s, including "workforce preparation, workforce development, human resource development, and economic development" (p. 6).

Communicating a common definition for work-related education to the highest levels has been one of the more complex problems for community college leadership and government officials. However well-meaning and practical, the community college's natural tendency to incorporate the local community's situation and state-specific funding in its delivery of work-related education has resulted in many forms of organization, multiple sources of funding, and varied perceptions on the part of governing agencies.

In fact, there was considerable variation in the support patterns and organization of work-related education among the states. According to the Education Commission for the States, state policy was a key factor to how effectively a community college supported work-related education in its area. In a survey conducted by the Center for Community College Policy (2002) at the Education Commission of the States, 17 of the 45 state agencies, which were responsible for oversight of community colleges, indicated the level of funding for workforce development was a policy issue that had been debated during the past two years (p. 5). In addition, 25 respondents stated that coordination of workforce funding was also a policy issue which was debated. The Center for Community College Policy stated that "to support workforce-training programs, community colleges often need to cobble together funding from a variety of sources" (p. 7). Moreover, according to a survey conducted by the Center for Community College Policy:

> Too often, community colleges are seen as "junior colleges" or "remedial institutions." This widespread lack of appreciation for their contributions to local economic development is surely one reason that community colleges are often poorly funded, particularly in comparison to four-year institutions. (p. 9)

In a 50-state survey conducted by the Education Commission of the States (ECS, 2000), significant variations were noted about how community colleges are funded across the country, as shown by example in Table 1-1 for the states that comprise the League for Innovation in the Community College Board of Directors. For example, Illinois community colleges receive only 0.08 percent of their funding from federal sources whereas Texas community colleges receive 14.4 percent of their overall general operating funds from the federal government. From a state-to-state perspective, Arizona's community colleges collect only 21 percent of their operating funds from the state, compared to North Carolina's community colleges, which collect 75 percent of their operating funds from the state (ECS, 2000).

Table 1-1 Percent Breakdown of General Operating Funds for 1998-1999 for States Represented on the League for Innovation Board of Directors

State	Federal[a]	State	Local	Tuition & Fees	Other[b]
AZ	1.00	21.00	57.00	20.00	1.00
CA	3.80	50.90	44.50	0.80	0.00
FL	0.25	68.51	0.02	23.06	8.00
HI	2.70	61.80	0.00	16.80	18.70
IA	3.21	45.66	5.89	38.97	6.27
IL	0.08	25.77	43.24	26.93	3.97
KS	2.00	24.00	40.00	16.00	18.00
MI	0.30	26.50	25.00	23.20	25.00
MO	2.00	41.00	26.00	24.00	7.00
NC	3.20	75.20	12.90	8.20	0.50
NY	5.70	29.00	31.30	34.00	0.00
OH	2.71	45.29	16.73	32.21	3.05
OR	11.50	39.90	19.90	16.20	12.50
TX	14.40	37.90	17.90	19.90	9.80
WA	5.00	59.00	0.00	17.00	19.00

[a]Includes all Perkins funds. [b]Includes federal financial aid and restricted funds other than Perkins.

Statement of the Problem

Numerous authors and practitioners have described and discussed how work-related education has been symptomatically developed, established in policy, and funded.

However, the root cause of many work-related education issues that community colleges face underscores policy and funding challenges, specifically the lack of a common definition for work-related education beyond the local community, state, and regional perspectives to a national level.

While community college leaders collectively possessed an appreciation and understanding of work-related education, local governments, state legislatures, and the federal government did not necessarily acknowledge or hold in the same regard the comprehensive nature of work-related education in the role of educating and training the nation's workforce. It was not apparent in the literature that a common definition existed for work-related education, which was universally recognized by community colleges let alone all those governmental agencies. On the other hand, it also was not apparent that community college leaders have collectively conveyed the vision and mission of work-related education beyond the communities that they serve. This lack of emphasis in vision and mission may have subsequently impacted the ability to present a common front for policymaking and funding at higher levels of government.

Throughout the past century, work-related education has had its opponents and advocates who have argued on political and ideological premises. Bragg (2001), however, states that "rarely have they been based on empirical results" (p. 13). A large part of the issues surrounding work-related education deals with "its changing focus and evolving goals" and how research may address questions about "new ideas, models, and approaches" (Bragg, pp. 13-14). The situation was summarized as "unfortunate because it suggests that community colleges have missed opportunities to steer vocational education in directions that would provide the greatest benefit" (Bragg, p. 13). Therefore

the challenge ahead would be to derive a common definition for work-related education and thus add to the body of knowledge pertaining to work-related education at community colleges.

Theoretical Framework

Many community college practitioners agreed about the concepts of humanistic education, learning communities, and, in particular, "the learning college." However, there were no direct references in the literature that focused specifically on the applicability of the six principles outlined in O'Banion's model of "the learning college" to work-related education. "The learning college" was a term used by O'Banion (1997) as a generic reference for all educational institutions (p. 47). The theoretical framework of this study was based on the applicability of the learning college's six principles to the processes and structure of learning in the work-related education setting. This theoretical application and the research study method offered community college practitioners an opportunity to carry out a dialogue about reframing work-related education in the theoretical context of the learning college on an equal footing with credit-based, degree-granting programs of study. However, the six principles could not be considered all-inclusive to the research by O'Banion's own admission: "Content, funding, and governance are examples of key issues that must be addressed and for which principles must be designed" (p. 61). For the purposes of this research study, O'Banion's theory was augmented by additional components specific to work-related education, as were identified in the literature. The learning college and its six principles thus served as the theoretical framework to develop, evaluate, and reach consensus on how student learning should take place in work-related education settings as part of deriving a common definition for work-related education.

Purpose of the Study

The primary purpose of this study was to test if work-related education conformed to the six principles of the learning college (O'Banion, 1997, p. 47). Furthermore, this study would supplement O'Banion's principles by examining additional complementary components of work-related education. The overall purpose would be to determine if in total the principles and components could be identified, categorized, and ranked to derive a common definition for work-related education at community colleges. In addition, this study tested the application of a Delphi technique to determine if a Delphi technique could be effectively applied to an educational forum for leaders of community colleges. The point would be to achieve consensus and levels of agreement to support the rationale for establishing a consolidated position on and a holistic approach to what constitutes work-related education. Such a position could facilitate clarity and consistency in policymaking, particularly funding decisions, at the federal, state, and local levels. By participating in this study, the community college leaders acted as a panel of experts assisting in the research to derive a common definition for work-related education at community colleges. This researcher anticipated that through the collective focus of the panel of experts, useful insights might be gained into how work-related education could pursue an increased presence and improved levels of support for community colleges in the United States. The following research questions were developed to guide this study:

Primary Questions

1. Which, if not all, of O'Banion's six principles of "the learning college" could be associated with work-related education?
2. What other components could be identified for the work-related education function at community colleges?

3. What were the most strongly advocated principles and components supporting work-related education?

Secondary Questions

Additionally, secondary questions were identified that could be answered as a result of this study. These questions were addressed through a compilation of answers to the primary research questions.

1. Could a selected group of community college leaders reach consensus, using a Delphi technique, on what principles and components could be identified to derive a common definition for work-related education?

2. Could meaningful relationships be confirmed between the six principles and the identified components to derive a common definition of work-related education?

The research questions were first addressed through an extensive search of relevant literature on work-related education in the field of higher education with a focus on community colleges. This literature review examined classical and current literature in the field of vocational and occupational education, as it related to the postsecondary educational organization. The need for this research was to establish a basis for testing the theoretical framework of O'Banion's six principles of the learning college and to identify components of work-related education. The principles and identified components were subsequently used in the development of the initial survey instrument. The purpose of the survey was to collectively present a basis of potential principles and components which could generate expert feedback. This feedback would contribute to deriving a common definition for work-related education.

Definition of Terms

Community colleges were defined as any public, regionally accredited, comprehensive, two-year institution. This study was limited to those 20 community colleges and districts listed in Table 1-2 whose chief executive officers (CEOs) served on

the League for Innovation in the Community College Board of Directors. Community colleges were not necessarily defined as a single college. They may have been part of a consortium or multi-campus facilities.

Table 1-2 The 20 Colleges Represented on the Board of Directors to the League for Innovation in the Community College

College	City	State/ Province
Anne Arundel Community College	Arnold	MD
Central Piedmont Community College	Charlotte	NC
Cuyahoga Community College	Cleveland	OH
Dallas County Community College District	Dallas	TX
Delta College	University Center	MI
Foothill-De Anza Community College District	Los Altos Hills	CA
Humber Institute of Technology & Advanced Learning	Toronto	Ontario
Johnson County Community College	Overland Park	KS
Kirkwood Community College	Cedar Rapids	IA
Lane Community College	Eugene	OR
Maricopa Community College District	Phoenix	AZ
Miami-Dade College	Miami	FL
Monroe Community College	Rochester	NY
Moraine Valley Community College	Palos Hills	IL
San Diego Community College District	San Diego	CA
Santa Fe Community College	Gainesville	FL
Seattle Community College District	Seattle	WA
Sinclair Community College	Dayton	OH
St. Louis Community College	St. Louis	MO
University of Hawaii Community Colleges	Honolulu	HI

Community college leaders were defined as the experts on work-related education within public community colleges. These leaders were identified as the colleges' "chief executive officers (CEOs), academic affairs officers, business/industry liaison officers, continuing education officers, or occupational education officers" (American Association of Community Colleges [AACC], 2004, p. 3) at the 20 colleges listed in Table 1-2 whose CEOS comprised the League for Innovation in the Community College Board of Directors. The League for Innovation "is an international organization dedicated to catalyzing the community college movement" (League for Innovation in the Community

College [League], 2004, About the League, preface). Twenty (19 in the United States and 1 in Canada) "CEOs from some of the most influential, resourceful, and dynamic community colleges and districts in the world comprise the League's board of directors" (League, para. 3) The League has more than 700 member institutions from 10 different countries and has partnerships with more than 100 corporations. With this innovative core of directors, members, partners, and collaborators, the League leads projects and initiatives including the expansion and improvement of workforce training programs in the United States and Canada.

Components were developed from a self-study guide published in a National Council for Occupational Education (NCOE) monograph (Hamm & Mundhenk, 1995, pp. 4-9). The components were defined as: (1) mission and organization; (2) funding; (3) needs assessment and documenting college success; (4) instruction, programs, and delivery systems; (5) staffing; (6) coordination and planning; and (7) national proclamation and national database.

The Delphi technique was defined as a methodology that utilized the expertise of current community college and district CEOs and their designated representatives. This methodology was used to reach levels of agreement and consensus on principles and components. The purpose was to derive a common definition of work-related education at community colleges within the realm of higher education in the 21st century. The methodology is based on a series of questionnaires or surveys with each being more structured and requiring more focused reflection on the part of the participating experts. This technique is a preferred methodology in the measurement of subjective judgments when the problem or study does not lend itself to other precise analytical methodologies.

The Delphi technique is an iterative process that is recognized as an inductive-based approach to examining multiple issues and extracting specific answers to questions in a variety of disciplines.

Higher education institutions were defined as all institutions of higher education, inclusive of two-year, four-year, private, and public institutions that grant undergraduate or graduate degrees.

A panel of experts was defined as those individuals who were selected to participate in the Delphi technique study. The panel of experts was chosen based on the participants' knowledge, familiarity with the problem, and skill with written communication.

Significance of the Study

The point of this study was to depict the ongoing plight for work-related education at community colleges, as well as the potential in pursuing a common definition model. To illustrate the dilemma, Donohue (2004) framed her remarks to the 2004 Economic Forum by stating: "this country doesn't have a definition for what workforce development is, and we don't have a workforce policy" (p. 6). This study was significant to community colleges and community college leadership to present a consolidated position on how work-related education could be defined for students, policymakers, business and industry--all stakeholders in a comprehensive sense. If the research demonstrates that a common definition for work-related education is desirable, community college leaders could more effectively present a unified position for work-related education for policymaking and funding decisions at the federal, state, and local government levels. Communication of a common definition to bridge the gaps among

practice, policy, and funding could be critical for work-related education to achieve a level of parity with other programs.

This study sought to confirm levels of agreement and consensus on O'Banion's six principles of the learning college and other identified components of work-related education, which in total supported a common definition. Although the results of the study could not be generalized to another group or nationally, the concepts and framework were readily transferable for use by other researchers. Policymakers and community college associations may choose to use this study as a guide for further research and policy development. They can give due consideration to the complexity of work-related education and how identifying the principles and the components significant to a common definition may simplify the concept. Developers of future work-related education programs may find the research helpful in determining the priority, focus, and applicability of new programs, which are based on the levels of agreement and consensus reached in this study.

Overview of the Research Process

This investigation was based on a constructionist epistemology and a phenomenological perspective. It used a Delphi technique methodology for the research and for any generalization of the results (Crotty, 1998, p. 42). The research method used to gather and analyze data was based on a mixed survey of the Likert scale and open-ended items. Research participants had considerable influence over the development of the survey instrument related to the research questions or statements. This methodology was identified as the Delphi technique, which uses a series of questionnaires or surveys to aggregate the knowledge, judgments, or opinions of experts in order to address complex questions (Moore, 1987, pp. 50-51). This Delphi technique was conducted in three

rounds of surveys, in which the instrument was adapted with each subsequent round. The Delphi technique was recognized as an appropriate study design and assessment to make important decisions about educational policy (Clayton, 1997, p. 386).

In addition to the Delphi technique, the theoretical framework offered by this research provided an evaluation frame to better compare, interpret, and support work-related education with other programs. The panel evaluated work-related education in the context of O'Banion's six principles of the learning college. The panel also identified other components that could contribute to a common definition for work-related education to establish a consolidated position. The panel of experts was surveyed to assess their perspectives regarding work-related education at their college, in their state and region, as well as nationally. The philosophical stance of this study was based on research of numerous works published during the past century. These works defined work-related education only to the extent that others addressed the problem to satisfy self-interests or the focus of a certain period in its history. Even more recent studies and research in the 1990s did not offer a solid context for today's policymakers to better determine the "who, what, why, and how" of work-related education programs. Several community college leaders and researchers had alluded to the problem and its impact on policymaking, funding, and delivering quality work-related education, but the dialogue fell short of deriving a common definition.

The use of qualitative data in educational research is recognized as important to the study and the understanding of educational phenomena, as well as providing a natural basis for interpretation with explanations emerging from intensive examination of the data (Tuckman, 1999, p. 400). Validity was essentially "built-in" after each phase by

virtue of the Delphi technique's development of the content of the scale matching the content domain. This was conveyed by the responses from the panel of experts and what they considered to be the constructs of interest. Internal validity claims were met by following established procedures for the Delphi technique to develop well-founded conclusions. External validity was dependent on the selection of the panel of experts as a representative body. Their scores or ratings may or may not be generalized for all community colleges in a particular sample, group, or population.

Assumptions, Delimitations, and Limitations

Assumptions

This researcher made the assumption that participants would answer the survey honestly and they would return each of the three phases in a timely manner. This researcher also assumed that the information collected would be usable as part of this research and that the participants were representative of the opinions of all their peers. Finally, this researcher assumed that those participants who chose to respond electronically would read, understand, and respond to each phase of the survey within a specified time frame without delegating this responsibility to a subordinate.

Delimitations

The research was delimited to public community colleges and districts whose CEOs served on the League's Board of Directors. Twenty CEOs were contacted to participate in the research study. In addition, each CEO was asked to identify another participant for the research study who carried out duties pertaining to work-related education at their institution.

Limitations

The limitations of this study included the use of a sample group from a specific organization. Only current chief executive officers and their designated representatives who were actively employed at community colleges were asked to take part in the study. While the theoretical focus was on O'Banion's six principles of "the learning college," it could not be construed that the participants understood the paradigm shift offered by this framework, nor directly endorsed the six principles, nor implemented "the learning college" vision in its totality at their respective institutions. Although there is no guarantee, this study may provide valuable information to other organizations or regions of the United States which were not directly represented by the sample group.

Only two-year public community college leaders were included in this study. Universities and private colleges were not included. This study did not attempt to compare two-year community colleges to four-year colleges and universities.

Additionally, these data were self-reported rather than observed by an impartial third party. It was vital that these data were the direct reflection of the community college leaders and others who were chosen to participate--and not the opinions of subordinates. This limitation was discussed in initial contacts with the participants. Each participant received and submitted materials electronically through the use of electronic mail systems and web-based systems at their respective community colleges.

Organization of the Remainder of the Study

Chapter 2 represents a review of literature pertinent to work-related education in the community college, in particular, the concept of the learning college as a theoretical framework for the study, and also the identification of other components pertinent to work-related education. Chapter 3 describes the research methodology, including the

development of the initial survey instrument, the three consecutive rounds of the Delphi technique, and the statistical procedures and tests employed for data analyses. Chapter 4 identifies the stratified sample of the population group within the public community college arena as chief executive officers and administrative leaders who comprised the panel of experts. Chapter 4 also contains detailed reporting of the data results and analyses from the three-round Delphi technique. The Delphi technique focused on evaluating the applicability of O'Banion's six principles of the learning college to work-related education, as well as other components identified from the literature and developed through the three-round survey process. Additionally, qualitative comments, opinions, and responses were encouraged from the participants to enrich the study, and their inputs were reported in the appendices. The use of qualitative data in educational research was recognized as important to the study, as well as and understanding of educational phenomena and providing a natural basis for interpretation with explanations emerging from intensive examination of the data (Tuckman, 1999). Chapter 5 presents conclusions based on the results from the data that were compiled and the relationships which were identified to expand the existing body of knowledge pertaining to work-related education. A prototype model of a common definition for work-related education is outlined, the commonality of certain components is identified, recommendations for further research are offered, and implications for community college leaders and policymakers are presented.

CHAPTER 2
LITERATURE REVIEW

Introduction and Scope

This chapter consists of a review of the relevant literature for the study. The research focused on the concept of work-related education in community colleges and on the principles and components that could be identified to derive a common definition for work-related education beyond community, state, and regional perspectives to a national level. Models of higher education were researched to seek a learner-centered innovation as a theoretical basis for framing a common definition for work-related education. Specific theory principles identified in the literature established the framework of the study and the three-round Delphi technique to which participants could respond to the application of learner-centeredness in work-related education.

To complement the theoretical framework, components of work-related education identified in the literature were included as touch points. These touch points were used for an expanded agenda to discuss the research topic in an effort to seek potential agreement of what constitutes work-related education. The research considered the evolution of work-related education in higher education and primarily focused on community colleges. The results of the literature review were arranged in this chapter by topics that evolved from the beginnings of community colleges and work-related education to the theoretical framework and component identification.

The Concept and Identity of Community Colleges

The comprehensive literature on community college evolution (Koos, 1924, 1925; Witt et al., 1994; Baker, Dudziak, & Tyler, 1994; Cohen & Brawer, 1996, 2003) begins with historical, yet perceptive, analyses of how community colleges evolved and then culminated with trends, challenges, and forecasts for the future. From a historical perspective, the initial reactions of many to what the function of the community (junior) college was could be summed up as: "to look upon this new unit in the school system solely as a sort of isthmus connecting the mainland of elementary and secondary education with the peninsula of professional and advanced academic training" (Koos, 1925, p. 16). To the contrary, Koos (1925) purported that he and others like him had higher expectations for the junior college as "an institution affecting much larger proportions of the population and influencing profoundly the organization of education on levels above and below" (p. 16). Witt et al. offered the following concept of two-year colleges:

> Whereas universities fought to remain exclusive, junior colleges measured their success by inclusion. Whereas universities molded students to fit their classical curricula, two-year colleges adapted to meet the needs of a changing nation. They created vocational, technical, and preprofessional programs to train skilled workers, from nurses to keep people healthy, to mechanics to keep people mobile . . . truly becomes the university of the common man. (p. 3)

Gleazer in his foreword to *America's Community Colleges: The First Century* emphasized that community colleges have continually pursued a search for institutional identity "for recognition and public understanding in terms of a mission different from and yet in some respects similar to the missions of both its progenitors, the secondary school and the college" (Witt et al., 1994, p. vi). By building on Koos's (1925) views, Gleazer made the point that a long- standing complaint of community colleges was the

lack of understanding and misunderstandings that evolved from the "mixed parentage" of the earlier days. Gleazer noted in those days that "the junior college could be another two years of secondary school--an extension of the high school . . . . or it could be the first two years of college" (p. vii). Lucas (1994) shared the perspective that early two-year schools viewed themselves as "a preparatory step to university life and a professional career. . . by the late 1920s and early 1930s the trend was . . . as terminal institutions where students of limited means might prepare themselves for skilled trades and semiprofessions" (p. 221).

Cohen and Brawer (2003) stated:

> The easily accessible, publicly supported school became an article of American faith, first in the nineteenth century, when responsibility for educating the individual began shifting to the school, then in the twentieth, when the schools were unwarrantedly expected to relieve society's ills. (p. 3)

Campbell, Leverty, and Sayles (1996) found that community colleges assumed these responsibilities readily as a new concept in higher education based on their "demonstrated flexibility in adapting to social and economic challenges facing communities, states, regions, and the nation" (p. 172). Lucas (1994) found that the "somewhat ambiguous and paradoxical role" of two-year institutions "was to satisfy the precept that in a democracy everyone is entitled to access to higher education" (p. 221). Cohen and Brawer described the beginning evolution of the concept and identity as based on community colleges setting a new precedence in higher education:

> The community colleges thrived on the new responsibilities because they had no traditions to defend, no alumni to question their role, no autonomous professional staff to be moved aside, no statements of philosophy that would militate against their taking on responsibilities for everything. (p. 3)

However, along with flexibility, adaptation, and educational innovation, community colleges have experienced an evolutionary mix, which contributed to

confusion about the community college mission, definition, and nomenclature (Baker et al., 1994, p. 4). The Morrill Act (Land Grant College Act of 1862) provided basic expectations for higher education within the states. However, the manner in which states carried out implementation produced many differences in organization, structure, and control of these institutions (Witt et al., 1994, p. 226). Ratcliff (1994) in *A Handbook on the Community College in America* (Baker et al., 1994) provided a historical context of this dilemma as:

> Many things are meant by the terms "community college," junior college," "technical college," and "technical institute." The lack of definition of these terms is attributable in part to the wide variation in mission, governance, finance, and structure of two-year colleges in the United States. (p. 4)

The use and definition of such terms as secondary education, vocational education, colleges, universities, and even higher education were peculiar to each state. These terms compounded the identity predicament with essentially 50 different bureaucratic implementations by states of the federal vocational acts that funded the states (Witt et al., 1994, p. 226). Gleazer (Witt et al.) found that while legislative language and accrediting manuals define and describe community colleges for their particular needs, there still "persists, most notably at the federal and state levels, less than full appreciation of the community college as an institution with an identity of its own" (p. viii). At the federal level, the community colleges' functionality was driven by the wars in the 20th century and, particularly, in the 1960s as educational legislation grew. Gleazer (Witt, et al.) also noted that "it was often necessary to examine congressional intent in order to determine whether community colleges were included in legislative measures affecting 'colleges.' . . ." (p. viii). Campbell et al. (1996) found that "state funding for higher education reflects

each state's preference for higher education among other services funded by the states" (p. 174). Cohen and Brawer (2003) stated:

> Nevertheless, other writers in education, and certainly the majority of those who comment on the role of the community colleges, suggest that education is an essential expenditure for economic growth, a common good, and is not merely a nonproductive sector of the economy, a form of consumption." (p. 242)

Witt et al. (1994) found that the Carnegie Commission on Higher Education recommended that more students be channeled into two-year colleges, particularly into vocational programs, which in turn helped mold America's emerging statewide community and junior college systems (p. 216). Honeyman and Bruh (1996) noted an observation in the preface of the *Seventh Annual Yearbook of the American Education Finance Association* made by Mary P. McKeown in the 1980s. She stated that higher education funding issues were tied to "sources of funding, levels of funding, and the very existence of the institutions" with education being equated to economic growth in the United States and the world (p. vii).

Transitioning to the 1990s, Honeyman and Bruh (1996) endorsed "the public expectation that colleges and universities contribute to the economic well-being of our nation by producing a highly trained and skilled workforce" while noting the change from McKeown's reference point to "two themes of increased attention in American higher education: institutional accountability and educational quality . . . with new performance-based accountability demands" (pp. 9-10). Again, the impetus of many aspects of the community college movement can be tied to national policy and significant pieces of legislation, which formed the concept and identity of community colleges over time. Witt et al. (1994) identified the following two examples of major national

legislation, which expanded American higher education. These examples were significant to the establishment and expansion of community colleges as well:

> The Land Grant College Act of 1862 and the GI Bill of 1945 have represented great steps in moving American higher education toward the universal educational opportunity envisioned by Thomas Jefferson and by the Ordinance of 1787. The agricultural and mechanical colleges were often referred to as "people's colleges" as were early junior colleges. (p. 275)

Cohen and Brawer (2003) stated that community colleges would continue to appeal to recent high school graduates because of "easy access, low cost, and part-time attendance possibilities," as well as to "job seekers because of the high demand for people in occupations for which some postsecondary training but not a bachelor's degree is expected" (p. 407). Witt et al. (1994) found from the beginning of the community and junior college movement that these colleges advocated a mission with three basic tenants: "preparing students for transfer to a four-year college, providing vocational training, and serving as a source of continuing education for the community" (p. 235). Although all three tenants have been stressed throughout the history of community colleges, the work-related education tenant in particular has not always received equal attention.

Work-related Education

In between the origins and the outlook for the future, community college researchers and authors of the past century often identified and addressed work-related education as one of the purposes of the two-year colleges, as well as making an early connection of community and college within their works. Cohen and Brawer (2003) described the early days of vocational programming as a force where "the community colleges grew in part because some of their earlier proponents recognized the coming need for semiprofessionals and despaired of the universities' adjusting rapidly enough to provide this less-than-baccalaureate education" (p. 220). In fact, at the American

Association of Junior Colleges (AAJC) “organizational meeting in 1920 and at nearly every meeting throughout the 1920s and 1930s, occupational education was on the agenda” (p. 221). The discussions at these early AAJC meetings centered around arguments on behalf of work-related education.

Cohen and Brawer found that “the thesis of Brint and Karabel’s book *The Diverted Dream* (1989) is that the AAJC was the prime force in effecting a change in community college emphasis from prebaccalaureate to terminal-occupational education” (p. 221). In 1922, the AAJC revised its statement of purpose in its constitution to better reflect the ties to community and work-related education: “The junior college may, and is likely to, develop a different type of curriculum, suited to the larger and ever-changing civic, social, and vocational needs of the entire community in which the college is located” (Witt, et al., 1994, p. 40). Parnell (1985) stated that work-related education at community colleges “brought vocational and technical education into the halls of ivy-covered institutions” and noted that community colleges communicated that there was dignity and worth in all honest labor (p. 87).

A Purpose of the Community College

Cohen and Brawer (2003) found that “vocational-technical education” was one of the “curricular functions” written in the plans for public colleges from the beginning and identified in most states’ legislatures. In 1900, William Rainey Harper suggested that many students were likely to terminate their education after completing junior college in order to seek positions as teachers or to go into business (Cohen & Brawer, 2003, p. 220). In 1915, Angell noted the interest of some junior colleges to “specialize particularly in industrial, engineering, and vocational directions, with its main interest centered on young people who will not go beyond the instruction it offers” (Witt et al., 1994, p. 39).

The 1920s found junior college leaders, in particular, Leonard V. Koos, focusing more and more on vocational education. In 1924, Koos was referred to as "the greatest booster of vocational programs" by some college researchers and authors (Witt et al. 1994, p. 48). He sought out university deans to confirm which professions could be taught at two-year colleges. Koos (1924) confirmed that in the field of engineering, as an example, the university deans he contacted identified 43 occupations that could be moved to a junior college level (p. 155). These "semiprofessions," as Koos referred to the occupations, became touch points on a national effort to expand work-related programs at junior colleges. Koos (1925) found "an appreciable beginning and partial awareness of the large need represented," as he sought out work-related education (semiprofessional training) at 300 institutions or organizations (p. 133). His overall investigation identified 20 purposes for the junior college, which were organized into five groupings. While the first purpose pertained to transferability, it was more conscionable when Koos (1925) made the point that:

> Purposes (2 and 3) are among those which would make it possible for the junior college to serve the interests of those who are "not going on." The former urges for such students *the provision of opportunities for "rounding out their general education,"* opportunities which are not given if the work offered is only that regarded as preliminary to some form of advanced training. (pp. 19-20)

Koos (1925) was seeking specific status for work-related education when he coined the phrase "semiprofessional" training, a descriptor for the third purpose. This referred to preparation for occupations, such as teaching as a "sole occupation" for which states granted "certificates to teach upon the completion of some or all of the work of the two years if the candidate includes courses in education" (p. 20). Gleazer (1968) made a point in the 1960s regarding national studies:

> But actually two-thirds of those enrolling will *not* transfer to a four-year college . . . . They will require organized educational experiences other than those leading to the bachelor's degree. . . . A substantial part of the two-thirds will prepare for employment. (pp. 66-67)

Parnell (1985) advocated a concept for improving work-related education in the mid-1980s to address the same concern about the education system as "the lack of a rigorous, constructive, and focused program of study to prepare the sixty to seventy percent of our high school students who will not likely be pursuing a baccalaureate-degree program" (p. xi). Bryant (1996) noted that ten years after Parnell's concept was introduced, "the initial 'tech prep' steam, however, has begun to slow down" (p. 414). He attributed the slowdown, not to any viability issue with the concept, but rather with the inability to adequately define the concept--a system which was "as fluid as the wind." Bryant advocated that "several of the problems disappear with the proper definition of the articulation system" and offered a model based on "required, suggested, and postsecondary components" (pp. 418-421).

Ratcliff (1994) presented a different perspective of the community college (Baker et al., 1994) and sought to cast a social context by describing the community college evolution as "seven streams of educational innovation" of which one stream was identified as "the vocational education movement" (p. 4). Ratcliff also referred back to the influences of William Rainey Harper who brought about the establishment of two-year colleges, including the Lewis Institute of Chicago in 1896 and the Bradley Polytechnical Institute (now Bradley University) in Peoria, Illinois, in 1897 (Baker et al., 1994, pp. 11-12). Witt et al. (1994) documented that following the classic works of Koos in the 1920s, work-related education took on a central role as a solution to the Great Depression era. In 1934, Doak Campbell, the secretary of the American Association of

Junior Colleges declared "that education was the strongest and cheapest social insurance that could be employed, and the nation that neglected it was inviting disaster" (p. 104). Lucas (1994) noted that two-year institutions were "lauded as instruments of social utility and efficiency . . . [and that] junior colleges continued to flourish throughout the Depression years, even when larger public universities languished for lack of adequate funding from state legislatures" (p. 221). Witt et al. noted that "Campbell foresaw a time after the current disaster when three-quarters of all junior college graduates would be in vocational and terminal programs" (p. 104).

Cohen and Brawer (2003) found that vocational education enrollments began growing at a rate greater than liberal arts enrollments in the 1960s and continued to do so for 20 years. They attributed the increases in enrollment for work-related education to several causes:

> This rise is attributable to many causes: the legacy left by early leaders of the junior college movement and the importunities, goadings and sometimes barbs of later leaders; the Vocational Education Act of 1963 and later amendments; the increase in the size of public two-year colleges; the increase in part-time, women, disadvantaged, disabled, and older students; the community colleges' absorption of adult education programs and postsecondary occupational programs formerly operated by the secondary schools; and the changing shape of the labor market. (pp. 226-227)

Indeed, as found by Witt et al. (1994), "Vocational programs were a boon to local industry," and junior colleges could quickly adapt to the needs of employers by retrofitting existing programs and developing new ones which satisfied industries' needs (p. 49). Consequently, it was those towns with a job training function that attracted local business, and industry reciprocated by becoming leading supporters of their local junior college.

Witt et al. (1994) found that community colleges had traditionally been shortchanged in federal funding whereas Congress directed vocational funds to local high schools and technical centers. Community college needs often fell through the cracks of federal funding, as well when higher education programs, such as those funded by the National Defense Education Act, went primarily to universities (p. 209). Witt et al. found that the American Association of Junior Colleges (AAJC) Commission on Legislation under chair Kenneth Skaggs was the leader in developing and publishing "principles for legislative action that gained wide use" (p. 226). The commission's model for state legislation drew from the research carried out by subsequent commission chair Dr. James L. Wattenbarger and others, and the model was used as a guide by a number of states (Witt et al., p. 227).

Two major successes for work-related education came in the form of two landmark education spending bills signed by President Lyndon Johnson in 1963. Witt et al. (1994) noted that the Higher Education Facilities Act of 1963 provided $1.2 billion for postsecondary construction projects, of which $690 million was authorized for matching grants for undergraduate institutions (p. 209). With community colleges guaranteed 22 percent of the Facilities Act funds, $151 million brought premier attention to the significance of community colleges. Congress soon became aware that there was a community college or junior college in almost every congressional district (Witt et al., p. 209). The Vocational Education Act of 1963 provided $450 million in new funds for construction and operation of vocational education schools. The act created departments or divisions of junior colleges that were associated with work-related education entities and thus eligible for the funds. Witt et al. noted that this act was amended in 1968 to

fund equipment grants, exemplary programs, consumer and homemaking education, and curriculum development (p. 210).

Witt et al. (1994) found that the Education Amendment Act of 1972 provided $707 million for postsecondary vocational programs. Those funds were supplemented with Congress appropriating an additional $981 million. Two years later, they found that "the number of vocational graduates doubled, and by the end of the decade, 62.5 percent of all two-year college graduates had received occupational degrees" (pp. 251-252). Besides federal appropriations and legislation, states were also committed and, in some cases, more supportive of work-related education. The state legislators noted that while workforce reform was traditionally centered on federally funded programs, state expenditures exceeded those of the federal government (Cohen & Brawer, 2003, p. 228).

Terminology of Work-related Education

Cohen and Brawer (2003) found that in its earliest beginnings, work-related education in community colleges was based on teaching skills that were beyond the level of high schools. These skills were "originally conceived as an essential component of terminal study--education for students who would not go on to further studies. . . ." (p. 22). Bragg (2001) details the beginnings of work-related education labeling, such as "occupational, career, technical or technological, semiprofessional, subbaccalaureate, and terminal." This education labeling was in addition to the newer terminology of the 1990s, which included "workforce preparation, workforce development, human resource development, and economic development." The different usages were based on the historical significance, intent, or focus, for example, technology, and how broadly defined the activities for the referenced label (p. 6). Koos (1925) again coined the term "semiprofessional" for that final training, which required more than secondary school

years and was classified as “trades” and contrasted to “professions,” which required four or more years of work beyond high school (p. 20).

Wattenbarger (1950) noted that “terminal education may be thought of as being general and vocational” (p. 60). Wattenbarger was first referring to the ties to high schools and the liberal arts college as general education. He referred to “vocational education,” as defined by Arthur B. Mays, as “the unprecedented developments in the physical sciences, in medicine, and in the social science since the turn of the century [that] have greatly expanded the vocational area for which careful training is required” (p. 62).

Cohen and Brawer (1996) found that “semiprofessionals typically referred to engineering technicians, general assistants, laboratory technicians, and other people in manufacturing, business, and service occupations” (p. 224). Cohen and Brawer (1996) referred throughout their third edition of *The American Community College* to the term “career education” and chose this term to represent “a collective term for all occupational, career, and technical studies.” “Career Education” was the term popularized by the U.S. Office of Education in the 1970s but “was coined in the 1950s to connote lower-school efforts at orienting young people towards the workplace” (pp. 216). Lombardi (1992) stated that “the term ‘career education’ has no more potency than the old names--occupational, semiprofessional, technical, vocational, trade” (p.79). By their fourth edition, Cohen and Brawer (2003) chose to change their point of reference back to “vocational education” as the descriptor for work-related education, suggesting that career education never quite caught on (pp. 224).

Bragg (2001) noted the historical significance of the many terms that have been used to describe work-related education, but she chose to focus on the term "vocational education because of its longevity and historical significance" (p. 7). Both Bragg and Cohen and Brawer (2003) agree that many terms have been used to describe work-related education and that the terminology "has never been exact" (Cohen & Brawer, p. 222). The overall interest and focus of the published works was not necessarily on the particular term to be used. Instead, a term was used consistently to establish "a logical benchmark for assessing change from the past to the present and to the future" (Bragg, p. 7). This is essentially why the researcher chose to refer to an original term "work-related education" within the boundaries of this study to be inclusive, not limiting, and without any bias of past terminology.

Learning College Theory and Work-related Education

Cohen and Brawer (2003) indicated that community colleges today and in the near future will continue to realize sufficient, if not increased, enrollments. They noted that "the absolute number of 18 year olds in the United States peaked at 4.3 million in 1979, bottomed at 3.3 million in 1992, and is projected to regain the 1979 level by 2009" (p. 405). However, two major reform reports in 1983 and 1993 gave reasonable concern as to whether or not community colleges, as part of the national higher education system, were up to the task to serve the students of those decades and in the future.

Recent Attempts at Educational Reform

The National Commission on Excellence in Education (1983) presented its viewpoint of American education in *A Nation at Risk: The Imperative for Educational Reform* as:

> We report to the American people that while we can take justifiable pride in what our schools and colleges have historically accomplished and contributed to the United States and the well-being of its people, the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a nation and as a people. (para. 2)

In the next decade, the Wingspread Group on Higher Education (1993) reiterated the general alarm of *A Nation at Risk* in its report, *An American Imperative*, which noted:

> A disturbing and dangerous mismatch exists between what American society needs of higher education and what it is receiving. Nowhere is the mismatch more dangerous than in the quality of undergraduate preparation provided on many campuses. The American imperative for the twenty-first century is that society must hold higher education to much higher expectations or risk national decline. (Higher Expectations for Higher Education, para. 1)

As a precept to his concept of the learning college, O'Banion (1997) addressed the reform efforts of the past noting that "a great deal of reform effort . . . focused on the traditional architecture of education. . . ."

The traditional education system is based, as has been noted, on an architecture that is time-bound, place-bound, efficiency-bound, and role-bound, undergirded by a grading system that assigns only 5 of 26 possible letters in the alphabet to designate amount and kind of learning achieved. (p. 63)

Learning College Theory

In response to an education system bound and restricted by traditions, O'Banion, a self-described "zealot for Humanistic Education," proposed a new way of thinking. His view would place the learner first and thus upset the established system and replace it with a new model. He based this new model on the writings of Dewey, Rodgers, Combs, and others pertaining to the natural educative process, client-centered therapy, and the humanistic education movement, respectively (pp. 42-44). Other authors and researchers also recognized that a new era for community colleges was necessary to unbind the ropes

of failed reform and forces of resistance. How community colleges would have to respond to increasing enrollment and satisfy student needs in a new era of community colleges was noted in the late 1990s by Alfred and Carter (2000):

> By today's standards, however, first generation institutions could not survive. Their strategy was to "develop and deliver" and factors of demand, competition and quality were relatively insignificant as part of this strategy. . . . Growth was their focus and a comprehensive institution with many offerings was a natural, though inefficient, organizational form. To be fair, they did plan and were sensitive to market dynamics and student needs, but nowhere near the extent to which today's high performing organizations do these things. (para. 1)

How community colleges respond and ensure they are indeed "high performing" required concentrated focus on what Alfred and Carter (2000) referred to as "market dynamics and student needs" (para. 1). As one scholar rhetorically asked, "Is education to be organized around institutions, credit, and credentials . . . or is education to be organized around learners as an optimal system for distributing knowledge and encouraging its utilization?" (p. 11). One widely recognized theoretical response was O'Banion's (1997) model for community colleges of the future titled *A Learning College for the 21st Century,* a new concept in the late 1990s. He described this concept as being "built on the long-established values in the community college, values that place a premium on quality teaching. . . ." (p. xvi). In the foreword to O'Banion's modern classic, Patricia Cross described how O'Banion offered "a compelling rationale for focusing the attention of higher education on student learning, i.e., on creating the 'learning college.' . . . Community colleges will be bellwether institutions if they adopt O'Banion's vision for the learning college" (O'Banion, 1997, p. x). In his book, O'Banion provided "a framework of the reform movements of the past decade and the emerging focus on learning" (p. xiv). He presented "a new model for education designed to help students make passionate connections to learning," and he identified six key

principles that formed the emerging definition and character of the learning college . . . ." (p. xiv).

Again, O'Banion (1997) referred to many other critics besides himself (for example, Cross, Marchese, Daggett, Leonard, Gerstner) who criticized the reform efforts of the past two decades as "mismatched," "falling short," and even "detrimental." O'Banion summed up the reform effort prompted by *A Nation at Risk* in 1983 as the "spectacular failure" (p. 6). O'Banion concluded that reforms were too focused on "add-ons or modifications to the current system," and did not address core issues that alluded to the root cause that the institution itself was the problem. He further described the reform efforts in the 1980s as "trimming the branches of a dying tree" (O'Banion, p. 7). In direct response, O'Banion proposed a focused theory for the community college "based on the assumption that . . . *the learning college places learning first and provides educational experiences for learners anyway, anyplace, anytime''* (p. 47).

O'Banion's (1997) theory was used as the theoretical framework for this study and was based "on the assumption that educational experiences are designed for the convenience of the learners rather than for the convenience of institutions and their staffs" (p. 47). The focus of this study, that is, the establishment of a consolidated position on and a holistic approach to what constitutes work-related education, was anticipated to reveal how a common definition or lack thereof was integrally related to policy development and funding decisions. The theory of the learning college and its six principles served as a foundation to understand the process. The principles provided a framework for developing, evaluating, and synthesizing the complex dynamics that

influence how work-related education could be viewed in higher education and at the federal, state, and local levels of government.

Six Principles of the Learning College

Again, O'Banion proposed a focused theory for the community college "based on the assumption that . . . *the learning college places learning first and provides educational experiences for learners anyway, anyplace, anytime''*. The framework of the learning college is based on six key principles (O'Banion, 1997, p. 47):

Principle I: ***The learning college creates substantive change in individual learners.*** This principle was described by O'Banion as "self-evident" and "an embedded value undergirding all other principles" (p. 48). This principle was integrated into the research study to determine if work-related education should create substantive change in its learners. This principle was used to "kindle" (stimulate) new ways of seeing, thinking, and doing--in dramatic "first" events and new discoveries, and also to "kindle" (stimulate) new ways of seeing, thinking, and doing--incrementally in day-to-day experiences.

Principle II: ***The learning college engages learners as full partners in the learning process, with learners assuming primary responsibility for their own choices.*** This principle was described by O'Banion: "A series of services will be initiated to prepare the learner for the experiences and opportunities to come" (p. 49). This principle was integrated into the research study to determine if work-related education should communicate that students are full partners in the creation and implementation of their learning experiences. This principle was used to determine: if students will assume primary responsibility for making their own choices about goals and options; if students

should be required to participate in a structured induction/orientation process; and if a personal learning plan or negotiated contract should be required for students (pp. 49-51).

Principle III: ***The learning college creates and offers as many options for learning as possible***. This principle was described by O'Banion as "options regarding time, place, structure, and methods of delivery (p. 52). This principle was integrated into the research study to determine if work-related education should offer a full array of options to accommodate individual differences in learning styles, rates, aptitudes, and prior knowledge and what options should be offered (p. 52). In addition, the research was augmented by other statements which complemented O'Banion's descriptors. This research was to determine if work-related educational options should be: "seamless," that is, not operated in isolation, so students can make reasonable changes in their programs; "trackless," that is, same beginning courses for several programs so students can explore before committing to a single track; and/or "classless," that is, similar skills within same programs at other institutions, thereby providing mobility for students who may change institutions (Hamm & Mundhenk, 1995, p. 13).

Principle IV: ***The learning college assists learners to form and participate in collaborative learning activities.*** This principle was described by O'Banion as "transforming the traditional institution ideal of a "community of scholars" into a new ideal of "community of learners." This principle was integrated into the research study to determine if work-related education should focus on creating communities among all participants (students, faculty, and other learning specialists) to: support individual learning; form and support learning communities in the workplace; establish learning communities and provide assessment services in the workplace.

Principle V: ***The learning college defines the roles of learning facilitators by the needs of the learners***. This principle was framed by O'Banion to submit that "if learners have varied and individual needs that require special attention, then it follows that the personnel employed in this enterprise must be selected on the basis of what learners need" (p. 57). This principle was integrated into the research study to determine if work-related education personnel should be hired on the basis of department or course needs or hired based on what learners need. This principle was used to determine if work-related education students should also participate as learning facilitators, that is, "to capitalize on the resources students bring, to free professional staff for other roles, and to reduce personnel costs" (O'Banion, p. 60).

Principle VI: ***The learning college and its learning facilitators succeed only when improved and expanded learning can be documented for its learners***. This principle was described by O'Banion as the "framework for documenting outcomes, both for the learner and for the learning facilitators" (p. 60). This principle was integrated into the research study to determine: if work-related education should require work-related educational competencies for entrance or exit; if portfolio assessment should be the primary means by which work-related learning is documented--should national or state standards not be available; and if community colleges should employ specialists or contract to develop "industry-based" standards (similar to health care occupational programs).

While O'Banion's (1997) six principles "refer primarily to process and structure," they were developed with the "basic philosophy that the student is central in all activities within the scope of the educational enterprise" (p. 61). Nora (2000) referred to

O'Banion's notes about community colleges providing the "ideal forum" for the learning college with a caveat that "different practices work differently on different student populations at different two-year colleges" (A Blueprint of Priorities for Action for Community Colleges, para. 3). Nora thus acknowledged the potential of this research direction of whether or not the theoretical framework of the learning college theory and its six principles could be identified and associated with work-related education. O'Banion also recognized that "other principles . . . must be considered. . . . Content, funding, and governance are examples of key issues that must be addressed and for which principles must be designed" (p. 61).

This study sought to supplement O'Banion's (1997) principles by examining additional complementary components of work-related education. Accordingly, it was anticipated that such a combination of specific, theoretical principles and relevant, practical components could be identified, categorized, and ranked to derive a common terminology and definition for work-related education at community colleges. In addition to O'Banion's six stated principles, components were identified as: mission and organization; funding; needs assessment and documenting college success; instruction, programs, and delivery systems; coordination and planning; and national proclamation and national database for work-related education.

Components of Work-related Education

This section consisted of a review of the relevant literature to identify components of work-related education which could be considered complementary to the principles of the learning college (O'Banion, 1997, p. 61). These components were included as touch points for an expanded agenda to survey participants on the research topic. They were also to seek convergence of agreement on what principles and components, in total, could

be identified, categorized, and ranked to derive a common definition for work-related education.

Mission and Organization

Mission and organization were described by Hamm and Mundhenk (1995) in the form of three questions (p. 4):

1. Does the college's mission statement focus in a significant way on workforce development?
2. Are those parts of the college that deliver in-service upgrade workforce training and retraining, as well as noncredit pre-training, explicitly a significant part of the mission?
3. Are they politically an important part of the organization?

This component was integrated into the research study to determine: if the mission statement should clearly claim the role of work-related education equal to other mission tenants; and if work-related education should be politically centrally planned and funded as an important part of the organization. Gleazer (1968) advised that "when a community college commits itself to occupational education . . . it is affirming an institutional viewpoint which affects every aspect of its operations (p. 79). Cohen and Brawer (2003) noted the following issue of merging work-related education on an equal basis with the collegiate function:

> The full effects of vocational education as a primary function have yet to be discerned. The public's view of community colleges as agents of upward mobility for individuals seems to be shifting toward a view of the institutions as occupational training centers. This narrowing of the colleges' comprehensiveness could lead to a shift in the pattern of support. (p. 251)

Funding

Funding was described by Hamm and Mundhenk (1995) in terms of community colleges assessing the viability of workforce development funding by developing

"strategies to modify the priorities of those who do control them" (p. 5), such as the criteria for funding. They posed two questions (pp. 5-6):

1. Do funding mechanisms acknowledge the centrality of workforce development?
2. Does the college make any efforts to influence funding formulas in order to include the needs of the emerging workforce as well as instructional innovation?

This component was integrated into the research study to determine if funding formulas should be influenced to include the needs of the emerging workforce on state, regional, national, and global basis and/or to include the needs of instructional innovation in work-related education.

Cohen and Brawer (2003) found that "funds are often secured through priorities established by state and federal agencies" (p. 233). However, according to Merisotis and Wolanin (2000), trends identified in 1995-1996 for total institutional revenues for community colleges indicated significant shifts since 1980 toward external revenue sources and away from core state and local funding for basic operations.

Merisotis and Wolanin (2000) found:

> Since 1980 the fastest growing revenue categories for community colleges have been government grants and contracts--federal, state, and local programs for training and research--and private gifts from corporations and individuals. In fact, as a share of total revenues, these four categories grew from 2 percent in 1980 to 20 percent in 1996, a tenfold increase in less than two decades. At the same time, state and local appropriations for basic operations fell from 70 percent of total revenues in 1980 to 50 percent in 1996 (U.S. Department of Education 1980 and 1996). These revenue trends suggested that the process of financing community colleges has migrated toward a more private, workforce-oriented education model. As the focus of community colleges has broadened to include more focused worker training, resources to pay for this training have increased substantially. (Revenue Trends, para.1)

Needs Assessment and Documenting College Success

Needs assessment and documenting college success were described by Hamm and Mundhenk (1995) in the form of two questions (p. 5):

1. How effectively does the college assess labor market needs or use available local labor market data?

2. Does the college explicitly measure its success in terms of its contribution to the development of local and regional economy?

This component was initially integrated into the research study to determine if community colleges should be the experts at monitoring local labor markets and collecting data for program planning and needs assessment. The integration of this component was also to see if success should be measured by work-related education program, certificate, or degree completion rates, or if success should be measured in terms of job generation, upgrades, retraining, and economic development. In addition to completion rates, student enrollments could be interpreted as an element of work-related education success (Cohen & Brawer, 2003):

> The number of students who are already employed and enter vocational programs only to get additional skills must be factored in, just as the students who obtain job certifications but find no jobs available to them should be tallied. Students who leave before completing the programs and enter employment in the field for which they are prepared must be considered program successes. (p. 235)

Cohen and Brawer (2003) found that "the college staff presumably initiates programs by perusing employment trends in the local area and surveying employers" (p. 233). In addition, they found that "career program success can also be measured by the number of students who obtain employment in the field for which they were prepared" (p. 234). With obtaining employment as the key endpoint of work-related education, it is a higher risk pathway compared to a liberal arts education. "The costs in tuition and foregone earnings may be the same for both, but occupational training is almost entirely wasted if there is no job at the end" (Cohen & Brawer, p. 248). Overall, when

considering needs assessment and documenting college success, Cohen and Brawer (2003) found:

> Because vocational education has several purposes, the measures of success that can be applied to it vary. It prepares people for specific jobs. How much do business and industry gain when their workers are trained at public expense? It assists the disadvantaged and people with disabilities to become self-sufficient. How much is that worth to society? It aids economic development. How much does a locality or region gain thereby? It enhances individual income generation and career mobility. What value has been added, person by person? Indicators of success and, indirectly, legislation and funding depend on which purpose is being reviewed. (p. 239)

Instruction, Programs, and Delivery Systems

Instruction, programs, and delivery systems were described by Hamm and Mundhenk (1995) in terms of whether community colleges were providing only entry-level job skills or rather "learning to learn" skills and an orientation to lifelong learning. They posed two questions (p. 7):

1. Do programs train for discrete jobs or for job clusters?
2. Are the business development and workforce training centers part of the regular college programming?

This component was initially integrated into the research study to determine if work-related education should be on entry-level skills or on learning-to-learn skills. Orientation to lifelong learning is an example: if work-related education should focus on preparation for a single job requiring a focused set of skills or on learning skills with broad application to several similar occupations; or if work-related education should be on an equal footing with regular college programming or considered as add-on revenue centers (separate from traditional credit programs).

Cohen and Brawer (2003) viewed the future for work-related education as positive in that "vocational education will remain prominent. There can be no reversing the

perception that one of the colleges' prime functions is to train workers" (p. 420).

Merisotis and Wolanin (2000) found that:

> The rapid evolution of the workforce means that employers are increasingly turning to community colleges as essential centers of worker training. . . . The key question for community colleges is how to strike a balance between these direct worker training efforts and general education programs that provide students with broader skills, such as critical thinking. (Evolving Workforce Needs and Employer Relationships, para. 1-2)

Staffing

Staffing was described by Hamm and Mundhenk (1995) in terms of whether community colleges were providing only entry-level job skills or rather "learning to learn" skills and an orientation to lifelong learning. They posed three questions (p. 8):

1. How do staffing patterns within workforce development areas match patterns in traditional credit programs?
2. What workplace experience do current instructors, counselors, and administrators have?
3. What percentage of the college staff serves both traditional and nontraditional students?

This component was initially integrated into the research study to determine: if community colleges should establish a staffing pattern of both hard-money and full-time positions to ensure that work-related education programs receive their fair share (compared to credit programs); if work-related education faculty and staff need real workplace experience to communicate effectively with students; if work-related education advisory committees provide sufficient "real world of work" input to faculty and staff; if student services and advising should be the same for work-related education students as it is for traditional credit students; if the student placement office should primarily focus on identifying career openings and pathways; or if the student placement office should primarily focus on short-term training for immediate employment.

Cohen and Brawer (2003) found that college staffs established work-related education programs "by perusing employment trends in the local area and surveying employers." They also noted that "program coordinators are appointed and advisory committees composed of trade and employer representatives established" (p. 233).

Coordination and Planning

Coordination and planning were introduced by Hamm and Mundhenk (1995) with two questions (p. 9):

1. Is the thinking and planning of the college primarily 'local' or 'regional'?
2. Can the college provide data that support regional or national claims about workforce development?

This component was initially integrated into the research study to determine: if work-related education programming and planning should take into account regional, national, and global trends; if community colleges should cooperate with one another to accomplish regional and national work-related education planning collectively; and if community colleges should seek to build coalitions and partnerships with other colleges, organizations, and business to define roles and a vision for work-related education. In addition, this component engendered the political overtones as suggested by Hamm and Mundhenk's statement that "colleges are expected to be sensitive to satisfying the demands of the district and their governing boards (p. 9).

Vaughn (1994) stated that, to be effective, community college leaders must focus on establishing political leadership and that "the president ensures that the college's mission moves in concert with the goals of the community, the state, and when appropriate, the nation (p. 73). Eaton (1994) made four suggestions about the presidential role in public policy:

> First, presidents must be pivotal in the definition of the issue at hand. Second, presidents must be strategically positioned to influence both locally based and state-based constituencies: they have a responsibility to the local community, local legislators, and the local press, as well as to their colleagues on the same level. Third, presidents must strengthen their state-level organizations to augment their individual efforts and build a sense of equity among institutions. Fourth, presidents need to be willing to take some risks to redesign and restructure the community college as part of the states' higher education enterprise--when and where appropriate. (p.124)

Furthermore, Eaton noted that "community college presidents have a great responsibility in influencing public policy . . . . presidents need to take risks in planning for the future in the areas of public policy and college governance" (p. 136).

Finlay, Niven, and Young (1998) found that vocational education and training (VET) systems were in fact prominent in viewing work-related education on a global basis:

> Many developed and developing nations are looking to their VET systems to provide a response to changes in the global economy. Our earlier research (Finlay and Niven 1996) indicated that some countries are proactive with respect to these changes, adopting long-term strategies that should benefit their economies. (p. 3)

However, Cohen and Brawer (2003) indicated that other industrialized nations offered few insights of how to reform or improve work-related education in the United States:

> Some countries depend on postsecondary institutions to carry the main burden, some on schools in the compulsory sector, and others on adult education that is provided by other than formal educational institutions. . . . The greatest proportions of students in vocational programs in formal postsecondary structures are in Japan, Germany, France, and Italy (National Center for Education Statistics, 1994f). (p. 241)

National Proclamation and National Database

A national proclamation and a national database for work-related education were described by Hamm and Mundhenk (1995) in terms of "preparedness" at the local level and its relationship and visibility at the national level so that community colleges could

"have appropriate influence on policy, funding, legislation, and rule-making" (pp. 15-16) This component was initially integrated into the research study as statements seeking to determine: if a national proclamation should be created and promoted which defines the role of the community college in work-related education; and if a national database reflecting community college potential and achievement should be created to assist in identifying limitations and areas of growth and improvement. Brand (Finley et al., 1998) described the process of change for work-related education in the United States as "complex, difficult, slow . . . possible," which was impacted on a national basis due to the "decentralized nature" of work-related education in the 50 states. Brand also noted that "despite federal legislation impasses, governors and state and local officials are taking the lead in changing their programmes [*sic*] and simplifying, consolidating and improving them" (p. 153).

Summary

Work-related education continues to be a topic of interest, as well as a topic of complexity and/or perplexity. Research about community colleges has produced a myriad of works on the broad topic of work-related education throughout the history of higher education in the United States. This topic continues to be viable research today. The lack of a pointed study and demonstrated efforts to achieve a common definition for work-related education reflects a gap in current research and practice. This is evident by the varying terminology and individuality of work-related education programs in the United States. Specifically, little evidence was found in the literature that directly addressed the need for or value of a common definition for work-related education. Yet the numerous and repeated deficiencies have surfaced that appeal to the value of pursuing a common definition. The literature review offered a basis for this study and future

research, which could provide meaningful, replicable information to shape and promote a common definition for work-related education in community colleges. More specifically, the literature review served as the foundation upon which the six learning college principles and other components identified in the literature could be used as a catalyst for this research study to take place. This research could ultimately contribute to efforts to derive a common definition for work-related education.

CHAPTER 3
METHODS

The Setting

This study sought to determine if the Delphi technique could be effectively employed in an educational forum for leaders of community colleges. The purpose would be to reach levels of agreement and consensus on what principles and components could be identified to derive a common definition for work-related education. Epistemologically, the Delphi technique could be derived from constructionism where the research results and conclusions essentially represent a "shared meaning" based on the interactive process of the Delphi technique (Stewart, 2001, p. 923). The research included the use of the Delphi technique to collect data from a panel of experts to determine if work-related education conformed to the six principles of the learning college (O'Banion, 1997). Nora (2000) referred to O'Banion's notes about community colleges providing the "ideal forum" for the learning college with a caveat: "Different practices work differently on different student populations at different two-year colleges" (A Blueprint of Priorities for Action for Community Colleges, para. 3). This acknowledges the potential of this research direction of whether or not the theoretical framework of the learning college theory and its six principles could be identified and associated with work-related education.

Furthermore, this study sought to supplement O'Banion's (1997) principles by examining additional, complementary components of work-related education. This study would determine if, in total, qualitative principles and components could be identified,

categorized, and ranked to derive a common terminology and definition for work-related education at community colleges. The use of qualitative data in educational research was recognized as important to the study for an understanding of educational phenomena and testing hypotheses. Qualitative data also provided a natural basis for interpretation with explanations emerging from intensive examination of the data (Tuckman, 1999). Linstone and Turoff (1975) summarized that the "Delphi may be characterized as a method for structuring a group communication process, so that the process is effective in allowing a group of individuals, as a whole, to deal with complex problems" (p. 3). By participating in this study, the community college leaders acted as a panel of experts assisting in the research to derive a common definition for work-related education at community colleges. Primary and secondary research questions were developed to guide this study and execute the methods.

Primary Questions

1. Which, if not all, of O'Banion's six principles of "the learning college" could be associated with work-related education?
2. What other components could be identified for the work-related education function at community colleges?
3. What were the most strongly advocated principles and components supporting work-related education?

Secondary Questions

Additionally, secondary research questions were identified that could be answered as a result of this study. These questions were addressed based on the compilation of answers to the primary research questions.

1. Could a selected group of community college leaders reach consensus, using a Delphi technique, on what principles and components could be identified to derive a common definition for work-related education?

2. Could meaningful relationships be confirmed between the six principles and the identified components to derive a common definition of work-related education?

This research study evolved into four stages:

First Stage

The first stage consisted of a review of the literature pertaining to community colleges and the role they fulfill in preparing the workforce. In conjunction with the literature review, a theoretical framework was identified in past literature which focused on the six principles outlined in O'Banion's model of the learning college (O'Banion, 1997). Additionally, specific work-related education components were identified based on work contained in a National Council for Occupational Education monograph (Hamm & Mundhenk, 1995, pp. 4-9). These components were included in the survey to complement O'Banion's theory for those areas not addressed: O'Banion advised that these components were "key issues that must be addressed and for which principles must be designed (O'Banion, p. 61).

Second Stage

This stage consisted of developing an initial mixed methods Delphi technique survey of Likert scale items, open-ended items, and open-ended comment blocks to assimilate data from the panel of experts. These data were based on the principles and components initially identified. This initial identification process by the researcher ensured that the three-round "limit" of the Delphi technique was maintained by complying with the following three procedures (Linstone & Turoff, 1975, p. 88):

1. The monitor team [researcher] devoting a considerable amount of time to carefully pre-formulating the obvious issues;
2. Seeding the list with an initial range of options but allowing the respondents to add to the lists;

3. Asking for positions on an item and underlying assumptions in the first round.

This initial survey design ensured that all the "obvious" statements and issues had been included to the extent possible and that participants were "being asked to supply the more subtle aspects" pertaining to each topic (p. 88). The initial survey was juried by a community college vice president with responsibilities for work-related education, a psychometric analyst, and two institutional researchers.

The open-ended comment blocks allowed participants to suggest additions, deletions, or changes in the wording of statements, which were then introduced as new items. These new items were developed by the researcher after a careful distillation of all the qualitative responses, as presented in the appendix. Linstone and Turoff (1975) also found that the ratings on items were sensitive to wording, and because of this property, the material can mushroom in size after the first round:

> If the respondents feel strongly about the issues, and this should be the case, they will generate a large amount of written material. If they are provided a certain number of items to deal with on the first round then each of them will make approximately the same number of written comments or additions in response. These must be abstracted carefully and duplications among the respondents eliminated. (pp. 92-93)

Third Stage

The Delphi technique was conducted in a series of three rounds to facilitate a detailed critical examination and structured communication process to focus attention on the problem. Both frequencies and the group's optional qualitative responses were shared with the participants in Rounds Two and Three. They supported the convergence of agreement on which principles and components could be identified to derive a common definition for work-related education. Surveys were offered in either an online electronic format or hardcopy format. The online web format was the first choice by 100

percent or 20 out of 20 total participants. Participants self-identified so the researcher could verify receipt of each participant's survey and facilitate any follow-up as required.

Fourth Stage

The fourth stage consisted of the final compilation and reporting of the data, the analysis of the data, and the presentation of the results. Both quantitative and qualitative analyses were provided as assimilated from the panel of experts. The researcher used the results and analyses to draw conclusions and bring forward recommendations for future research.

The Participants

A specific group of community college leaders were identified to comprise the panel of experts. These leaders were identified as the colleges' "chief executive officers (CEOs), academic affairs officers, business/industry liaison officers, continuing education officers, or occupational education officers" (American Association of Community Colleges [AACC], 2004, p. 3) at the 20 colleges listed in Table 1-2 whose CEOS comprised the League for Innovation in the Community College Board of Directors. The League for Innovation "is an international organization dedicated to catalyzing the community college movement" (League for Innovation in the Community College [League], 2004, About the League, preface).

Twenty (19 in the United States and 1 in Canada) "CEOs from some of the most influential, resourceful, and dynamic community colleges and districts in the world comprise the League's board of directors" (League, para. 3) The League has more than 700 member institutions from 10 different countries and has partnerships with more than 100 corporations. The list of the League's Board of Directors was posted at: http://www.league.org/league/about/board_of_directors.htm. Some institutions were

organized with a chancellor as CEO with multiple presidents; other institutions had a president as the CEO. By requesting the personal participation from each CEO plus his primary administrator responsible for work-related education, the total possible sample size consisted of 40 possible participants of which 20 community college leaders agreed to participate in the study.

The participants were recruited by a personal communication signed by the president and a president emeritus, respectively, of one of the colleges which was represented as one of the members of the League's Board of Directors. The personal communication explained the Delphi technique and specifically requested a commitment from all the CEOs to personally participate in the study along with the primary administrators who were responsible for work-related education at their colleges. The topic of study and the time involved to participate were communicated to the invitees. All CEOs received a postcard to return confirming their interest to participate in this research study plus requesting their electronic mail addresses for communication. The postcard also provided: space to confirm contact information (name, position, electronic mail address) for all the administrators who would participate in the research study; the choice of completing the surveys using the online web format; and the choice of receiving an electronic copy of the finished research study.

The researcher obtained informed consent by way of a follow-up letter once interest was confirmed by the return postcard. The informed consent document was mailed to all voluntary participants. All participants were informed that they would not have to answer any question they did not wish to answer. After the primary investigator received a signed copy of the informed consent by mail, the first-round survey was announced via

electronic mail with the survey's corresponding web link. The participants were informed that only the researcher would have access to the data and the self-identifiers were to be removed during final analysis. The participants were also advised that their identities would be kept confidential to the extent provided by law and their identity would not be revealed in the final dissertation. All participants were advised that there were no anticipated risks, compensation, or other direct benefits as a participant in this interview. The participants were advised that they were free to withdraw their consent to participate and could discontinue their participation at any time without consequence. The gender proportion was 65 percent male and 35 percent female. Nine or 45 percent were CEOs, and the other 11 or 55 percent were primary administrators responsible for work-related education at their colleges. Three of the participants were between 46 and 50 years old. Nine were between 51 and 55 years old. Five were between 56 and 60 years old. Two were between 61 and 65 years old, and one was 66 years old or older.

Tasks and Materials

The Delphi technique was the method chosen by which the panel of experts provided levels of agreement, opinions, and beliefs regarding a specific set of statements in three successive rounds of surveys. The most successful studies are the result of three rounds of data collection as "three rounds proved sufficient to attain stability in the responses; further rounds tended to show very little change and excessive repetition was unacceptable to participants (Linstone & Turoff, 1975, p. 229). The researcher compiled the data, tested for validity, and reported back to the panel between each round. The panel was asked to respond to the statements in each round, as well as provide optional, qualitative comments. The data were then collected and analyzed with additions, deletions, and refinements, as deemed appropriate from the responses and quantitative

analyses. The survey content was the task because all participants received the same instructions and experienced the same activities. The content and task were therefore constant for all participants (Tuckman, 1999).

The Delphi technique followed the procedures of using self-reported data. The procedure used for establishing the Delphi technique was to jury the proposed instrument. The instrument was juried by a community college vice president with responsibilities for work-related education, a psychometric analyst, and two institutional researchers. The instrument was juried on the basis of their reading comprehension of the statements, ease of completion, length of time required to complete the survey, and the manageability of the web-based technology.

The sample group was offered a choice of a mailed hardcopy or an electronic copy of the surveys. All the participants chose to respond by accessing an electronic copy of the survey, and they were provided links via electronic mail to the web-based electronic surveys. No one chose to participate using a hardcopy survey.

The sample group responded to the initial survey, Round One, and the survey data were compiled with the item frequencies/percentages redistributed to the sample group. All responses to the open-ended questions in Round One were compiled and provided anonymously in an attached file. New and revised statements were developed from the responses and added to Round Two.

In the second survey, Round Two, with frequencies posted for the items, participants were asked to consider the frequencies and to rate each of the Likert scale survey items in an effort to seek convergence of agreement on the items. In addition, participants were advised to provide their underlying reasons for any statement(s) with

which they may have taken exception with the converging group view. Open-ended blocks were provided after each set of statements, which pertained to each specific principle and component for participants, to give their reasons for any exceptions.

The data were assimilated a second time, making note of changes that occurred since Round One. The item data were compiled with the item frequencies/percentages redistributed to the sample group. As in Round One, the responses to the open-ended questions in Round Two were compiled and provided anonymously in an attached file and once again distributed to the participants as a final survey, Round Three, via electronic means. Participants were given a final opportunity to validate or revise the data previously submitted. Participants were asked to justify their responses, particularly in cases where their responses differed from the majority of the participants. At this point, the data were then organized according to the statistical assumptions. This last group of data were compiled and analyzed. The data between Round One and Round Two were analyzed, as were the data between Round Two and Round Three, to determine the effects of the responses on the statements in the subsequent surveys.

The iterative process of the Delphi technique allowed for data collection to be implemented in a non-threatening manner. The group was afforded opportunities to change its ratings in subsequent rounds. The group could reach further levels of agreement on specific principles and components, which could be modeled to derive a common definition for work-related education.

General Operational Design

The study employed Internet-based survey research to examine if and how community college leaders could reach agreement using a series of surveys to aggregate their knowledge, judgments, and opinions as a panel of experts. The panel of experts was

comprised of community college CEOs and their respective administrators responsible for work-related education in order to address the complex question of how to define work-related education. The panel of experts communicated their knowledge and experience through a three-round iterative process. They used the Delphi technique to reach agreement on which principles, components, and other aspects could be identified, prioritized, and applied to a common terminology and definition for work-related education. Differential outcomes were considered based on the participants' position/capacity at their colleges and characteristics of their colleges.

The operational design represented multi-factor repeated measures and longitudinal research with three levels labeled as Round One, Round Two, and Round Three (e.g., repeated measures: time-1, time-2, time-3). The design included the total score, the principles' score, and the components' score factors whereby the participants (CEOs and administrators) responded to the research statements. They then reached levels of agreement through the iterative process of the Delphi technique.

Data Collection

Round One

Once interest was confirmed by the voluntary participants, the informed consent document was mailed to all participants advising them that the web link to Round One would be electronically mailed upon receipt of the signed informed consent letter. The web link to Round One was electronically mailed to all participants. The introductory electronic mail to the first round survey welcomed the participants to the study and explained the general procedures to follow. All participants were asked to read the rationale, directions, and instructions before attempting to complete their surveys. Upon

opening the web link, each participant was asked to self-identify with the first five letters of the last name for the researcher to verify receipt of survey results.

The Round One survey consisted of three sections. The first two sections contained 46 statements, which served as a task to be completed by each participant. The third section contained demographic survey items. The first section of 21 statements pertained to work-related education and O'Banion's (1997) six principles of the learning college. The second section of 25 statements contained other key issues, areas of focus, and components of work-related education, as were initially identified in the literature review. A Likert scale was placed immediately below each statement. The Likert scale was self-explanatory. Participants were asked to rate each statement by checking the perceived agreement with each statement. The rating scale had as the lower anchor, "Strongly Disagree," and was assigned a negative three (-3) value, and the higher anchor, "Strongly Agree," was assigned a positive three (+ 3). The options were coded as: "Strongly Disagree" = -3; "Disagree" = -2; "Slightly Disagree" = -1; "Slightly Agree" = +1; "Agree" = +2; and "Strongly Agree" = +3. A neutral option or response choice of "undecided," "no opinion," "uncertain," or "don't know" was intentionally left out. It was feasible to use a response scale with an even number of responses and no middle, neutral, or undecided choice because most participants, as experts, had an opinion and corresponding level of agreement for the items. Otherwise, as per the informed consent, it was clear to the participants that they did not have to respond to every statement. But they could take a "no judgment" view, which is a practice commonly applied to Delphi studies (Linstone & Turoff, 1975, p. 90; Adler & Sainsbury, 1996, p. 188).

After each set of statements pertaining to a specific principle or component subsection, participants had an opportunity to write optional statements of opinion or comment, if they so desired. The second section was followed by a final, open-ended question as an opportunity to list any other items that the participants believed would contribute to a common definition for work-related education. The intent of this final question was to encourage reflection beyond the initial survey with an additional purpose to provide points of reference. These points of reference would assist with the data analysis where lack of agreement or consensus existed. The third section of Round One consisted of three demographic questions pertaining to current work capacity, gender, and age.

Six days after the initial notification was sent via electronic mail, self-identified survey results were reconciled to the list of confirmed participants. A generic reminder request was sent via blind copy electronic mail to those who had not yet completed Round One. Verification was made on an every-other-day basis until all expected responses had been received up to nine days from the original notification. On the ninth day, individual personalized electronic mails were sent to the remaining six participants who had yet to complete Round One. Six of the seven participants responded by the 13th day from initial notification. The 20th participant made contact and advised technical difficulty in accessing the web survey. That participant was advised and subsequently responded to Round One.

Survey results for the 20 participants were downloaded into spreadsheet and text files. Likert scale items and demographic information were analyzed statistically using Excel, SPSS, and SAS programs. Open-ended comments and opinions were interpreted

as subjective information, which had characteristics relevant to the research questions. This subjective information was developed and aggregated as revised with additional survey items for new statements in Round Two. Six statements were revised and replaced, 16 new statements added, and in total the number of statements increased from 46 to 62.

Round Two

The Round Two survey was electronically mailed following the analysis of Round One, posting of frequencies, and aggregation of revised and new statements. The electronic mail for the second round survey thanked the participants for their support of the study and explained the general procedures to follow for Round Two. All participants were asked to read the rationale, directions, and instructions before attempting to complete their surveys. Upon opening the web link, all participants were asked to self-identify with the first five letters of the last name for the researcher to verify receipt of survey results. Round Two consisted primarily of 40 out of 46 of the same items in Round One plus the open-ended comments and opinions, which were developed and aggregated as 22 revised and additional survey items. A Likert scale was placed immediately below each statement. All the anonymous open-ended responses and comments were contained in a Microsoft Word document file, which was also provided via an attachment to the electronic mailing. For those statements which did not change, the frequencies/percentages were placed in front of the respective Likert scale options. The frequencies identified the relative position of the group consensus in relation to the Likert scale options for ease of understanding and reevaluation for convergence of agreement.

During Round Two, each participant was given an opportunity to re-rate each of the 40 original statements with knowledge of the group's convergence of agreement. It was explained that although consensus was desirable, they should not have felt compelled to re-rate according to the group's ratings. However, participants were advised that if they differed markedly to the group's ratings, they should have given careful reappraisal to those particular statements. As in Round One, the Likert scale was self-explanatory. Participants were asked to rate each statement by annotating their perceived agreement with each statement. The rating scale had as the lower anchor, "Strongly Disagree," and was assigned a negative three (-3) value, and the higher anchor, "Strongly Agree," was assigned a positive three (+ 3). The options were coded as: "Strongly Disagree" = -3; "Disagree" = -2; "Slightly Disagree" = -1; "Slightly Agree" = +1; "Agree" = +2; and "Strongly Agree" = +3. A neutral option or response choice of "undecided," "no opinion," "uncertain," or "don't know" was intentionally left out and deemed reasonable as virtually all participants had an opinion and corresponding level of agreement for the items. Otherwise, as per the informed consent, it was clear to the participants that they did not have to respond to every question. But the participants could take a "no judgment" view, which is a practice commonly applied to Delphi studies (Linstone & Turoff, 1975, p. 90; Adler & Sainsbury, 1996, p. 188). Again, participants were advised to provide their underlying reasons for any statement(s) with which they may have taken exception with the converging group view. An open-ended block was provided after the two individual principle and component subsections for participants to provide their reasons for any exceptions. The third section of Round Two consisted of: three

classification questions pertaining to the organization; size; location of the participant's college or district; and one demographic question pertaining to current work capacity.

One week after the initial notification was sent via electronic mail, self-identified survey results were reconciled to the list of confirmed participants and a generic reminder request was sent via blind copy electronic mail to those who had not yet completed Round Two. Verification was made on an every-other-day basis until all expected responses had been received up to 11 days from the original notification. On the 11th day, individual personalized electronic mails were sent to the remaining six participants who had yet to complete Round Two. Four of the six participants responded by the 22nd day, and one participant responded by the 29th day from the initial notification of Round Two.

Survey results for the 19 participants were downloaded into spreadsheet and text files. Likert scale items and demographic information were analyzed statistically using Excel, SPSS, and SAS programs. Open-ended comments and opinions were interpreted as subjective information, which had characteristics relevant to the research questions. This subjective information was developed and aggregated as revised and additional survey items for new statements in Round Three. The data obtained from Round Two were analyzed using descriptive statistics. A criterion was set so that any statement not scoring an overall positive mean was excluded from Round Three. Six statements not achieving the criterion were eliminated. In addition, one statement was revised into two statements, and these two new statements were added. In total, the number of statements decreased from 62 to 59.

Round Three

The Round Three survey was electronically mailed following the analysis of Round Two. The electronic mail for the Round Three survey thanked the participants for their support of the study and explained the general procedures to follow for Round Three. Each participant was asked to read the rationale, directions, and instructions before attempting to complete their survey. Upon opening the web link, each participant was asked to self-identify with the first five letters of the last name for the researcher to verify receipt of survey results. Round Three contained the statements from Round Two--less the six statements not scoring an overall positive mean--plus the new and revised statements. A Likert scale was placed immediately below each statement. Frequencies for all statements in the form of percentages or levels of agreement were placed in front of the respective Likert scale options. The frequencies highlighted the relative position of the group consensus in relation to the Likert scale options for ease of understanding and reevaluation for convergence of agreement. A Microsoft Word document file containing all the anonymous open-ended responses and comments was also provided via an attachment to the electronic mailing.

With Round Three, each participant was given a final opportunity to re-rate each statement with knowledge of the group's decision. It was explained that although consensus was desirable, the participants should not have felt compelled to rate according to the group's rating. However, participants were advised that if they differed markedly to the mean rating, they should have given careful reappraisal to that statement. In addition, participants were given the opportunity to explain their reasons for their ratings on Round Three, but were not compelled to do this.

As in Round One and Round Two, the Likert scale was self-explanatory. Participants were asked to rate each statement by annotating their perceived agreement with each statement. The rating scale had as the lower anchor, “Strongly Disagree,” and was assigned a negative three (-3) value, and the higher anchor, “Strongly Agree,” was assigned a positive three (+ 3). The options were coded as: “Strongly Disagree” = -3; “Disagree” = -2; “Slightly Disagree” = -1; “Slightly Agree” = +1; “Agree” = +2; and “Strongly Agree” = +3. A neutral option or response choice of "undecided," "no opinion," "uncertain," or "don't know" was intentionally left out and deemed reasonable because virtually all participants had an opinion and corresponding level of agreement for the items. Otherwise, as per the informed consent, it was clear to the participants that they did not have to respond to every question, but they could take a “no judgment” view, which is a practice commonly applied to Delphi studies (Linstone & Turoff, 1975, p. 90; Adler & Sainsbury, 1996, p. 188). Again, participants were advised to provide their underlying reasons for any statement(s) with which they may have taken exception with the converging group view. An open-ended block was provided after each of the two sections for participants to provide their reasons for any exceptions. The third section of Round Three consisted of one demographic question pertaining to the current work capacity of the participant.

One week after the initial notification was sent via electronic mail, the self-identified survey results were reconciled to the list of confirmed participants, and a generic reminder request was sent via blind copy electronic mail to those who had not yet completed Round Three. Verification was made on a daily basis until all expected responses had been received up to two weeks from the original notification. Individual,

personalized electronic mails were sent to the remaining five participants who had yet to complete Round Two. Verification was made on a daily basis until all expected responses had been received. Two of the remaining five participants responded by the 17th day from initial notification of Round Three.

Communication Process

During the course of the study, telephone contacts were initiated, and numerous mailings and electronic mail messages were received and sent. Only work phone numbers, work addresses, and electronic mail accounts were accessed. The researcher offered both work and mobile phone numbers along with an electronic mail address to facilitate frequent and cordial contact with the participants to achieve the maximum response rates for the three Delphi rounds. Personal communications in the form of thank-you cards were sent to every participant after the closure of Round Three. Those participants who requested an electronic copy of the final study were advised that copies would be forthcoming after the successful defense of the dissertation and its subsequent publication.

Data Management and Statistical Procedures

The data from the surveys were analyzed after each round was downloaded. Data were managed and entered into a spreadsheet denoting individual responses to each statement and open-ended questions. Specific comments and responses to the open-ended questions, which were downloaded into a spreadsheet, were subsequently transferred to a Word document for qualitative analysis. The use of qualitative data in educational research is recognized as important to the study and understanding of educational phenomena, testing hypotheses, and providing a natural basis for interpretation with explanations emerging from intensive examination of the data

(Tuckman, 1999). Sample characteristics included: the number of participants (n) and demographics, which included each participant's position at the college; his gender; his age; and classification data on his respective college, which included the organization (number of campuses), size (number of students), and location of the college/district (urban, suburban, or rural).

The data analysis and statistical procedures that were employed by the researcher focused on the primary purpose of this study: to test if work-related education conformed to the six principles of the learning college (O'Banion, 1997). The other purposes of this were to see if other complementary components of work-related education--in total, principles and components--could be identified, categorized, and ranked to derive a common terminology and definition for work-related education at community colleges. This study tested the application of the Delphi technique survey method to determine if the Delphi technique could be effectively applied to an educational forum for leaders of community colleges. The purpose would be to achieve consensus and support rationale for establishing a consolidated position on and a holistic approach to what constitutes work-related education. As such, by focusing on the purpose of reaching consensus, levels of agreement, and further identifying issues pertaining to work-related education, this study did not address whether or not the "extreme" answer was the "correct" answer. Based on the research questions guiding the study, the right answer would instead be determined by whether or not the experts reached consensus and levels of agreement on the various constructs.

Reliability of the Instrument

Reliability refers to the consistency of such measurements when the testing procedure is repeated on a population of individuals or groups (American Psychological

Association, American Educational Research Association, & National Council on Measurement in Education [APA, AERA, NCME], 1999). Reliability also refers to the extent to which the responses are free of measurement error. As such, the responses should be the same every time the measurement is repeated on the same group, sample, or population. To achieve reliable results, the scale and instrument were constructed so as to minimize random error in responses. The study focused on the proportion of the experts who responded to item stems (statements) according to the scale scores. That Rounds Two and Three of the Delphi afforded the experts an opportunity to change their initial ratings in light of the new information further ensured that the results could be used for well-founded conclusions.

Validity of the Instrument

"Validity" refers to the appropriateness of use and the proposed interpretation of the scores for a given purpose under a prescribed set of conditions. Validity is the most fundamental consideration in developing and evaluating the extent to which an instrument is doing what it is supposed to do. Crocker and Algina (1986) refer to Cronbach's description of "validation as the process by which a test developer or test user collects evidence to support the types of inferences that are to be drawn from test scores" (p. 217). Validation begins with an explicit statement about the proposed interpretation of the scores. There is no single all-inclusive form of validity. Validity is instead a matter of degree with types of evidence adding weight to validity, described as content, criterion-related, or construct validity. These three types of evidence are only conceptually independent, and rarely is just one of them important in a particular situation.

The types of evidence describe the extent to which the data obtained are systematically representative of the true state of affairs, and they describe if the assessment items give information about what the items were intended to provide (Penfield, 2003). Content validity describes how well the content of the scale matches the content domain intended to be measured by the scale. In other words, it makes human judgments about whether or not the content of the items covers the major facets related to the knowledge areas. Content validity addresses features of the test, not the scores. In fact, content validation often occurs before scores are even obtained. Crocker and Algina (1986, p. 218) outlined the following steps for content validation:

1. Defining the performance domain of interest;
2. Selecting a panel of qualified experts in the content domain;
3. Providing a structured framework for the process of matching items to the performance domain; and
4. Collecting and summarizing the data from the matching process.

Content validity was essentially "built-in" with the juried "expert review" survey and also with each round of the Delphi technique. This was by virtue of the development of the content of the scale matching the content domain, as conveyed by the experts' responses and what they considered to be the constructs of interest. Other types of evidence related to content validity existed, such as face validity, which is really not as antidotal as perceived by some (that is, does it look professional, serious, worth taking, and so forth). Face validity was appropriate in this case as a type of evidence in which items appeared to measure a construct that was meaningful to laypersons and may have served to motivate participants "to perform their best since the instrument appears to measure a meaningful construct" (Crocker & Algina, 1986, p. 223). Criterion-related

validity pertains to the accuracy of decisions linked to the validity of the scores. For the purposes of this study, these two secondary research questions were asked:

1. Could a selected group of community college leaders reach consensus, using a Delphi technique, on what principles and components could be identified to derive a common definition for work-related education?
2. Could meaningful relationships be confirmed between the six principles and the identified components to derive a common definition of work-related education?

Construct validity was used to determine whether or not the items of the scale measure the constructs they are supposed to measure. Construct validity addresses the degree to which scores represent the unobservable trait operationalized through the items. Internal validity claims were met by following established procedure for the Delphi technique to answer inferential questions about the scores and further define and distill the data to well-founded conclusions. It would have been most difficult, if not impossible, to incorporate a comparison group into the Delphi research design to establish certainty of the instrument. External validity was dependent on the selection of the experts as a representative body, whose scores may or may not be generalized to all community colleges in a particular sample, group, or the population.

Analytical Procedures

Descriptive statistics, t-tests, the Duncan's multiple-range test, and the parametric correlation were all statistical procedures and tests used to examine the data in this study. The data in each phase were analyzed in terms of the statements' means, standard deviations, and confidence intervals, in addition to the participants' responses to open-ended questions for each item. The iterative structure of the Delphi technique developed what the panel of experts identified as the content domain and what they considered to be the constructs of interest. Again, the participants' responses to open-ended questions

were given considerable weight for revising, deleting, and adding statements in the subsequent rounds. Negative means gave an indication of how individual statements did not support agreement of specific principles or components and their lack of association with work-related education. After Round Two, those statements, which did not meet the criterion of an overall positive mean, were excluded from Round Three. This criterion acknowledged that participants did not endorse specific statements as descriptive of the research questions and constructs of interest.

Descriptive Statistics

Descriptive statistics, which are those statistics used to best answer questions about or describe the parameter of interest, were analyzed for every item over the participants, which included the measures of central tendency-- mean, median, mode--plus confidence intervals, standard deviation, frequencies, including cumulative frequencies.

Penfield (2003) defined the mean as "a common method of obtaining a representative value for the average of a group of scores" (p. 72). Tuckman (1999) defined the median as "the score in the middle of a distribution: 50 percent of the scores fall above it, and 50 percent fall below it" (p. 288). Furthermore, "The median defines the middle of the distribution and is not as sensitive to extreme scores as is the mean" (Tuckman, 1999, p. 289). The mode is a measure of central tendency, which describes the most frequently occurring observation. No calculation is involved to identify the mode. It may not exist or there could be more than one modal value, which suggests a bi-modal observation, that is, the indication of two separate distributions.

Penfield (2003) described a confidence interval as an interval that has a certain level of confidence of containing the value of interest (p. 110). The lower and upper bounds of the confidence interval are useful in specifying with a certain degree of

confidence, such as 95 percent confident, that the interval around the sample mean is expected to contain the population mean (Crocker & Algina, 1986, p. 433). The measure of dispersion of the participants' responses used in this study was the standard deviation. Penfield (2003) defined the standard deviation as "a measure of the amount of spread in a group of scores, which equals the typical distance that each score in the group lies from the group mean" (p. 72). Frequencies and cumulative frequencies were used to verify and analyze the Likert scale data. The frequencies for the statements in the form of percentages were provided to the participants for comparability and convergence of agreement between Round One and Round Two and between Round Two and Round Three.

Parametric Statistical Tests

A large amount of the quantitative portion was descriptive due to the nature of the Delphi technique and driven by the small number of participants (n). An independent t-test was used as an investigation of any differences between the two means for CEOs and other administrators. This was to ascertain the probability that any difference between them reflected a real difference between the groups of participants rather than a chance variation in the data (Tuckman, 1999, p. 300). The t-test was an effective tool for predicting any statistical differences between the means for the scores (total score and the individual scores for the principles and the components) as the dependent variables from the independent variables (CEOs and administrators). An analysis of variance could not be used for factor analysis since the participant sample size (n) in the study was too small to permit a meaningful factor analysis. Three primary questions were posed:

1. Did the average total score depend upon the job capacity of participant (CEOs versus other administrators)?

2. Did the average score for the principles of the learning college subsection depend upon the job capacity of participant (CEOs versus other administrators)?

3. Did the average score for the other identified components subsection depend upon the job capacity of participant (CEOs versus other administrators)?

As a follow-up to the independent t-tests, a Duncan's test (Duncan's multiple range test) was employed as a type of multiple comparison test used to make pair-wise comparisons of means that are not significantly different among themselves. The Duncan's test provided output that was essentially a "picture" of which pairs of means were significantly different as a post hoc test. The Duncan's test was employed to determine if statistical differences existed among the average total scores with any statistical significance between Round One and Round Two, between Round Two and Round Three, and between Round One and Round Three. Correlation coefficients were used to confirm statistical significance for the principles of the learning college and the components identified, as pertaining to work-related education. A correlation matrix was constructed in which the correlation between every pair of variables was computed. Then the variables were organized into a matrix to facilitate inspection and comparison of each for significance.

Summary

The aggregate data from all three rounds were collected, compiled, and the participants' comments were noted after each round. The aggregate data and comments were shared with the participants for review and reflection when they received each subsequent round. Participants had the opportunity to change their minds at any time during Round Two or Round Three to allow time to reflect on an issue. After the final data were compiled, the quantitative analysis of data was completed using a statistical program (SAS). The qualitative analysis took into consideration the compilation of

comments made throughout the collection process. The Delphi technique was recognized as an appropriate study design and assessment to make important decisions about educational policy (Clayton, 1997, p. 373). Internal validity was a function of developing an appropriate survey instrument and administering the surveys over a three-round iterative process, while compiling and redistributing the aggregate data to the participants after each round. External validity was a function of determining if the results obtained answered the research questions and further the process of deriving a common definition for work-related education. External validity was also viewed in terms of whether or not a common definition would extend beyond the sample and apply to a larger sample of the population. When designing a research project, the two principle types of validity, internal and external, must be balanced to obtain conclusive results (internally), but they must still represent a more global reality (externally) for the results to be generalized to other groups, a larger sample, or the population (Tuckman, 1999, p.10). Detailed reporting of the data analysis is contained in Chapter 4.

CHAPTER 4
PRESENTATION AND ANALYSIS OF DATA

Introduction

The primary purpose of this study was to test if work-related education conformed to the six principles of "the learning college" theory (O'Banion, 1997, pp. 47-61). Furthermore, this study would supplement O'Banion's learning college principles by examining additional complementary components of work-related education. The purpose would be to determine if in total the principles and components could be identified, categorized, and ranked to derive a common definition for work-related education at community colleges. O'Banion recognized that "there are certainly other principles that must be considered. . . . Content, funding, and governance are examples of key issues that must be addressed and for which principles must be designed" (p. 61). Included in the study were the learning college principles, components identified in the existing literature, and other related components, which were developed by participants through the iterative process of the Delphi technique. This study tested the application of the Delphi technique to determine if it could be effectively applied to an educational forum for leaders of community colleges to achieve consensus and levels of agreement. This in turn could support a rationale for establishing a consolidated position on and a holistic approach to what constitutes work-related education. Such a consolidated position could facilitate clarity and consistency in policymaking at the federal, state, and local levels. By participating in this study, the community college leaders served as a

panel of experts assisting in the research to derive a common definition for work-related education at community colleges.

Specifically, this study sought answers to primary and secondary research questions, which were developed to guide this study and execute the methods:

Primary Questions

1. Which, if not all, of O'Banion's six principles of "the learning college" could be associated with work-related education?
2. What other components could be identified for the work-related education function at community colleges?
3. What were the most strongly advocated principles and components supporting work-related education?

Secondary Questions

Additionally, secondary research questions were identified that could be answered as a result of this study. These questions were answered through a compilation of the answers to the primary research questions.

1. Could a selected group of community college leaders reach consensus, using a Delphi technique, on what principles and components could be identified to derive a common definition for work-related education?
2. Could meaningful relationships be confirmed between the six principles and the identified components to derive a common definition of work-related education?

Results of the Delphi Technique

This primarily qualitative, mixed-methods study was designed to be experimental. The Delphi technique was used to survey the perceptions of community college CEOs and administrators responsible for work-related education. They served as a panel of experts to confirm levels of agreement on those principles and components from which a common definition for work-related education could be derived. The initial survey was juried by a community college vice president with responsibilities for work-related

education, a psychometric analyst, and two institutional researchers. Revisions to the format and content were made based on the recommendations of the jury. One-hundred percent of the participants chose to do the survey electronically, and they were provided the web-based electronic surveys. No one chose to participate using hardcopy surveys. The participants' results from the three-round Delphi technique were collected through an online service based on an open-source project, which originated at Virginia Tech (http://www.opensource.isc.vt.edu/products/survey/). The online service was titled: *Survey - A web-based survey tool*, and was available via the College of Education website at the University of Florida. When each round was completed, the researcher downloaded the survey responses data into a pop-up window and saved the raw data as a text file. The survey data in the text file were exported to Microsoft Excel via the "import external data" function for the initial analysis and data coding.

Quantitative statistical analysis tools were applied to each statement in each round, including the measures of central tendency--mean, median, mode--plus confidence intervals, standard deviation, frequencies, including cumulative frequencies. Goldstein (1975) identified "the means, standard deviations, percentage distributions" as appropriate descriptive statistics used in Delphi research studies and these statistics for each statement in each round were included in this report (Linstone & Turoff, 1975, p. 222). Each statement was analyzed using Excel and SAS programs to provide empirical data to alleviate concerns regarding the use of the Delphi technique. Each statement also addressed concerns about inconclusive evidence, which was subsequently supported by statistical data analysis.

The qualitative responses were collected through the use of open-ended comment boxes on the web-based survey tool. The qualitative responses data were simultaneously downloaded into a pop-up window along with the survey raw data and saved as a text file. The qualitative data in the text file were exported from Microsoft Excel to Microsoft Word for aggregation, analysis, and presentation in the Appendix. Additionally in Round One, one participant electronically mailed expanded reflections regarding the principles, components, and perceptions. These comments were included in the qualitative data response results in the Appendix.

Selection and Confirmation of Participants

The participants in this study were all current employees of public community colleges. Twenty community college CEOs and 20 of their administrators, respectively, for a total of 40 community college leaders, were invited to participate in the study. These community college leaders were defined as the experts on work-related education within a population of public community colleges. The sample included the colleges' "chief executive officers (CEOs), academic affairs officers, business/industry liaison officers, continuing education officers, or occupational education officers" (American Association of Community Colleges [AACC], 2004, p. 3) at the 20 colleges listed in Table 1-2 whose CEOS comprised the League for Innovation in the Community College Board of Directors. Out of the 40 potential participants, 20 agreed to participate. According to Clayton (1997), the group size may vary with "15-30 people for a homogeneous . . . and 5-10 people for a heterogeneous population," which is an acceptable number of participants for using a Delphi technique in educational studies (p. 8). Ziglio (1996) noted that "good results can be obtained even with small panels of 10-15 individuals" (p. 14). The final group of 20 participants provided a stratified sample of

CEOs and administrators from varied community college classifications of organization, size, and location (Community College Survey of Student Engagement [CCSSE], 2005). Eighteen participants were from the United States and two were from Canada. The American participants' colleges represented a geographically diverse sample. The geographic diversity was demonstrated by membership in five out of the six regional accrediting organizations, as recognized by the Council for Higher Education Accreditation (CHEA) and the U.S. Department of Education (USDE). The 18 participants at American colleges included:

- Seven from the North Central Association of Colleges and Schools
- Five from the Southern Association of Colleges and Schools
- Three from the Middle States Commission on Higher Education
- Two from the Western Association of Schools and Colleges
- One from the Northwest Commission on Colleges and Universities

The participants represented colleges which were 42 percent urban and 58 percent suburban; no colleges were considered rural. Eighty-nine percent of the participants were employed at colleges with extra large enrollments (15,000 or more students); only 11 percent of the participants were employed at colleges with a large enrollment (8,000 to 14,999 students); no colleges were considered medium or small, e.g. 4,500 to 7,999 or fewer than 4,999 students). In terms of organizational size, 58 percent were from a multi-campus organization, 37 percent were from a single campus, and the remaining 5 percent portrayed a single member college in a multi-college system. The gender proportion was 65 percent male and 35 percent female. Nine or 45 percent were CEOs, and the other 11 or 55 percent were primary administrators responsible for work-related education at their colleges. Three of the participants were between 46 and 50 years old. Nine were

between 51 and 55 years old. Five were between 56 and 60 years old. Two were between 61 and 65 years old, and one was 66 years old or older.

Response Rates to Delphi Surveys

The response rate for Round One was 100 percent. All 20 of the community college leaders (nine CEOs and 11 administrators) who agreed to participate, actually completed Round One. An initial response rate of more than two-thirds was considered high for a Delphi study and showed significant interest on the part of the panel of experts (Jillson, 1975, p. 132). Considering the intensity of the schedules of these top community college leaders, this researcher anticipated that not all participants would complete all rounds, and this was the case in this study. The response rate for Round Two was 85 percent. Seventeen out of the 20 who agreed to participate, (7 CEOs and 10 administrators) actually completed Round Two. The response rate for Round Three was 75 percent. Fifteen out of the 20 who agreed to participate (six CEOs and nine administrators) actually completed Round Three. In all three rounds, all or 100 percent were able to respond through the web-based survey format. The aggregate response rate for the three rounds was acceptable considering that Round Three's sample size was 15 with "15-30 people for a homogeneous population" as an acceptable sample size for using a Delphi technique in educational studies (Clayton, 1997, p. 8). Ziglio (1996) noted that "good results can be obtained even with small panels of 10-15 individuals" (p. 14). A review of other Delphi research (Linstone & Turoff, 1975; Jillson, 1975) and Delphi-based dissertations (Smith, 1975; Nemr,1977; Lewis, 1984) revealed a reduction in response rates from the first to the final round, "particularly those involving voluntary participation" (Jillson, p. 132).

Verification of the Accuracy of the Delphi Technique

The Delphi technique was used as "a communications structure aimed at producing a detailed critical examination and discussion" with certain quantification of the participants' viewpoints (Turoff & Hiltz, 1996, p. 56-57). This communication process required the participants, serving as a panel of experts, to rate statements in a series of iterative surveys to quickly identify levels of agreement and disagreement. The groups' levels of agreement for each round were shared in subsequent surveys (Round Two and Round Three). The response rating frequencies or percentages for each statement, which were integrated in the subsequent surveys, focused on which principles and components could be identified, categorized, and ranked to derive a common definition for work-related education. To verify the accuracy in using the Delphi technique for this research study and to present the results of the three-round process in a comparative depiction, response ratings from all three iterative rounds were presented in a round-by-round evaluation of the data with the appropriate descriptive statistics. These response ratings frequencies, means, and standard deviations by survey statement were reported for each of the six principles of the learning college and for each of the seven identified components of work-related education, as summarized and presented in Table 4-5.

The researcher shared the groups' viewpoints after each round with the participants for self-comparison and as a point of reference for considering the other participants' views. The frequencies reported were based on the aggregate of the total number of responses and their corresponding ratings in each particular round. In addition to providing the frequencies, the qualitative responses were collected through use of open-ended comment boxes on the web-based survey tool. These qualitative responses were also shared in the subsequent rounds (Round Two and Round Three), as summarized and

presented in the Appendix. The Delphi technique and these procedures offered each participant an opportunity to reconsider his position in light of the groups' views in addition to considering new items that were introduced. That the second and third rounds of the Delphi survey technique afforded the panel of experts these opportunities to change their ratings in light of "new information" further ensured that the results could be used for well-founded conclusions. Content validity was essentially "built-in" with each round of the Delphi technique. Content validity was verified by virtue of the development of the content of the scale matching the content domain, as conveyed by the panel's expert responses and what the participants considered to be the constructs of interest. The merger of a Delphi technique, the research procedures, and the web-based process verified and promoted reaching a superior group view of the task at hand through the phenomenon "collective intelligence" (Turoff & Hiltz, 1996, p. 80).

Round One Results

Twenty participants rated each of 46 statements according to the following scale: "Strongly Disagree," "Disagree," "Slightly Disagree," "Slightly Agree," "Agree," or "Strongly Agree." Any absence of a rating for a statement was classified as "no judgment." As in each round of the Delphi, participants were asked to complete three sections. Instructions and statements were provided for each section as a task to be completed. After each subsection for a principle or component, the participants were asked to list their reactions, initial thoughts, comments, and/or recommended changes to any statements pertaining to the specific principle or component. The participants who rated the eighth statement either "Agree" or "Strongly Agree" for "work-related education should offer a full array of options to accommodate individual differences in learning styles, rates, aptitudes, and prior knowledge" were asked to respond to an open-

ended question, “what options should be offered.” At the end of survey’s first and second sections (before demographics data section), the participants were asked to list any other principles, components, changes in service delivery, and innovative ways of thinking which they believed would contribute to a common definition for work-related education. Finally, the participants were asked to respond to a third section which requested demographic data, as detailed earlier in this chapter. The percentages, means, and standard deviations reported in Table 4-5 were based on an aggregate of the total number of participants who responded by round and the corresponding group ratings. Not all percentages equated to 100 percent due to fractional rounding or in those cases where participants chose not to respond (classified as “no judgment”) to specific statements. Open-ended comments and opinions were interpreted as subjective information, which had characteristics relevant to the research questions. This subjective information was developed and aggregated as revised with additional survey items for new statements in Round Two. Six statements were revised and replaced, 16 new statements added, and in total the number of statements increased from 46 to 62. At the conclusion of Round One, the participants were electronically mailed the web link to the follow-up Round Two survey. The follow-up survey contained revisions based on the panel of experts’ recommendations along with the qualitative data and comments compilation from Round One. The information in the Appendix reflects the raw qualitative responses and comments from Round One which were analyzed to refine the survey instrument for Round Three. The information in Table 4-5 reflects the levels of agreement for each statement in each round, as rated by the panel of experts.

Round Two Results

Seventeen participants rated each of the 62 statements in Round Two according to the following scale: "Strongly Disagree," "Disagree," "Slightly Disagree," "Slightly Agree," "Agree," or "Strongly Agree." Round Two consisted primarily of 40 out of 46 of the same items in Round One, which were presented with the participants' aggregate frequencies or percentages from Round One for the Likert scale responses. In addition, the open-ended comments and opinions were analyzed from which 22 revised and additional survey items were developed and aggregated into Round Two. Additionally, an absence of any rating for a statement was classified as "no judgment." As in each round of the Delphi, participants were asked to complete three sections. Instructions and statements were provided for each section as a task to be completed. After each section for the principles and the components, the participants were asked to provide their underlying reasons for any statements with which they may have taken exception with the converging group view. These statements may have pertained to a specific principle or component, as reported in the Appendix. Finally, the participants responded to a third section, which requested demographic and college classification data, as detailed earlier in this chapter. The percentages reported in Table 4-5 were based on an aggregate of the total number of participants who responded by round and the corresponding group ratings. Not all percentages equated to 100 percent due to fractional rounding or in those cases where participants chose not to respond (classified as "no judgment") to specific statements. Open-ended comments and opinions were interpreted as subjective information, which had characteristics relevant to the research questions. This subjective information formed the basis for revised and additional survey items which were aggregated as new statements in Round Three. The data obtained from Round Two were

analyzed using descriptive statistics. A criterion was set so that any statement not scoring an overall positive mean was excluded from Round Three. Six statements not achieving the criterion were eliminated. In addition, one statement was revised into two statements, and these two new statements were added. In total, the number of statements decreased from 62 to 59. At the conclusion of Round Two, the participants were electronically mailed the web link to the follow-up Round Three survey. The follow-up survey contained revisions based on the panel of experts' recommendations along with the qualitative data and comments compilation from Round Two. The information in the Appendix reflects the raw qualitative responses and comments from Round Two, which were analyzed to refine the survey instrument for Round Three. The information in Table 4-5 reflects the levels of agreement for each statement in each round, as rated by the panel of experts.

Round Three Results

Fifteen participants rated a possible 59 statements according to the following scale: "Strongly Disagree," "Disagree," "Slightly Disagree," "Slightly Agree," "Agree," or "Strongly Agree." Each round of the Delphi technique requested the participants to complete three sections. Instructions and statements were provided for each section as a task to be completed. Round Three contained the statements from Round Two less the six statements not scoring an overall positive mean. Round Three also contained revised and new statements based on qualitative inputs. Thirty-five statements carried over from Rounds One and Two. As in the two previous rounds, open-ended comments and opinions were interpreted as subjective information, which had characteristics relevant to the research questions. For Round Three, a criterion was set so that any statement not scoring an overall positive mean in Round Two was excluded from Round Three. Six

statements not achieving the criterion were eliminated. Again, this subjective information was developed and aggregated as revised and new statements in Round Three. From the subjective information, one statement was revised into two, and two new statements were added. In total, the number of statements decreased from 62 to 59. The data obtained from Round Three were analyzed using descriptive statistics. Additionally, an absence of any rating for a statement was classified as "no judgment." An open-ended comment block was provided after each of the two major sections for the principles and the components. Participants were given an opportunity to provide their underlying reasons for any statements with which they may have taken exception with the converging group view. These statements pertained to any specific principles or components. The percentages reported were based on an aggregate of the total number of participants who responded by round and the corresponding group ratings. Not all percentages equated to 100 percent due to fractional rounding or in those cases where participants chose not to respond (classified as "no judgment") to specific statements. The information in the Appendix from Round Three reflects the participants' reasons for taking exception with the groups' views and further general comment about the work-related education topic. The information in Table 4-5 reflects the levels of agreement for each statement in each round as rated by the panel of experts.

Differences in Responses by Subgroups and Rounds

An independent t-test was used as an investigation of any differences between the two means for CEOs and other administrators. The t-test was to ascertain the probability that any difference between them reflected a real difference between the groups of participants rather than a chance variation in the data (Tuckman, 1999, p. 300). The t-test was an effective tool for predicting any statistical differences between the means for the

scores (total score and the individual scores for the principles and the components) as the dependent variables from the independent variables (CEOs and administrators). An analysis of variance could not be used for factor analysis since the participant sample size (n) in the study was too small to permit a meaningful factor analysis. Three primary questions were posed:

1. Did the average total score depend upon the job capacity of participant (CEOs versus other administrators)?

2. Did the average score for the principles of the learning college subsection depend upon the job capacity of participant (CEOs versus other administrators)?

3. Did the average score for the other identified components subsection depend upon the job capacity of participant (CEOs versus other administrators)?

As noted in the Tables 4-1, 4-2, 4-3, statistical differences between the CEO scores and other administrator scores were not present.

Table 4-1 T-test of Average Total, Principles, and Components Scores for CEOs and Administrators during Round One

Average Scores	CEO	Administrators
Total Score	71.3	64.9
Principles Score	37.6	31.2
Components Score	33.8	33.7

* Statistical differences between CEO scores and other administrator scores were not present at $p < 0.05$.

Table 4-2 T-test of Average Total, Principles, and Components Scores for CEOs and Administrators during Round Two

Average Scores	CEO	Administrators
Total Score	103.4	100.9
Principles Score	55.4	52.1
Components Score	48.0	48.8

* Statistical differences between CEO scores and other administrator scores were not present at $p < 0.05$.

Table 4-3 T-test of Average Total, Principles, and Components Scores for CEOs and Administrators during Round Three

Average Scores	CEO	Administrators
Total Score	131.0	120.6
Principles Score	69.8	63.3
Components Score	61.2	57.4

* Statistical differences between CEO scores and other administrator scores were not present at $p < 0.05$.

Given the absence of statistical significant differences between CEO scores and other administrator scores, as presented in Tables 4-1, 4-2, 4-3, another means test was run as a follow-up on the entire group between Rounds One, Two, and Three. The means test conducted on the entire group was the Duncan's test (Duncan's multiple range test), which, as a type of multiple comparison tests, was used to make pair-wise comparisons of means that were not significantly different between each other. The Duncan's test, as presented in Table 4-4, provided output that was essentially a "picture" of which pairs of means were significantly different as a post hoc test.

Table 4-4 Duncan's Multiple Range Test of Scores between All Three Rounds

	Round One	Round Two	Round Three
Total Score	60.7*	66.6	72.7*
Principles Score	26.4*	29.6	32.9*
Components Score	34.3	36.9	39.8

* Denotes statistical significance at $p < 0.05$.

The Duncan's test was employed to determine if statistical differences existed among the average total scores with any statistical significance between Round One and Round Two, Round Two and Round Three, and Round One and Round Three. Statistical differences were not evident between Round One and Round Two or between Round Two and Round Three. However, statistical significance was evident in average total scores between the first and third rounds. This significance indicated that measurable progress was made in reaching consensus from the first round to the final results.

Table 4-5 Descriptive Statistics of Statements Compared Across All Three Rounds

Section A: Work-related Education and the Learning College

According to O'Banion (1997), "The learning college places learning first and provides educational experiences for learners anyway, anyplace, anytime."
Please consider if work-related education has a place in the learning college and how each of the following six principles may or may not apply to work-related educational experiences.

Table 4-5 Continued

1. Work-related education should create substantive change in its learners.

	Round One	Round Two	Round Three
Strongly Disagree	5%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	0%	6%	0%
Slightly Agree	0%	0%	13%
Agree	50%	59%	47%
Strongly Agree	45%	35%	40%
Mean	2.200	2.176	2.267
Standard Deviation	1.323	0.951	0.704

2. Work-related education should "kindle" (stimulate) new ways of seeing, thinking, and doing--in dramatic “first” events and new discoveries.

	Round One	Round Two	Round Three
Strongly Disagree	5%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	5%	0%	0%
Slightly Agree	5%	6%	7%
Agree	40%	41%	20%
Strongly Agree	45%	53%	73%
Mean	1.522	2.471	2.667
Standard Deviation	0.667	0.624	0.617

3. Work-related education should "kindle" (stimulate) new ways of seeing, thinking, and doing--incrementally in day-to-day experiences.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	0%	0%	0%
Slightly Agree	5%	6%	7%
Agree	60%	71%	60%
Strongly Agree	35%	24%	33%
Mean	2.300	2.176	2.267
Standard Deviation	0.571	0.529	0.594

Principle II: According to O'Banion, "The learning college engages learners as full partners in the learning process, with learners assuming primary responsibility for their own choices."

Table 4-5 Continued

4. Work-related education should communicate that students are full (and active) partners in the creation and implementation of their learning experiences.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	5%	0%	0%
Slightly Disagree	5%	0%	0%
Slightly Agree	0%	6%	0%
Agree	30%	18%	20%
Strongly Agree	60%	76%	80%
Mean	2.250	2.706	2.800
Standard Deviation	1.372	0.588	0.414

5. Work-related education should communicate that students will assume primary responsibility for making their own choices about goals and options.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	5%	0%	0%
Slightly Disagree	5%	0%	0%
Slightly Agree	5%	6%	6%
Agree	40%	35%	33%
Strongly Agree	45%	59%	67%
Mean	2.050	2.529	2.667
Standard Deviation	1.356	0.624	0.448

6. Work-related education should require students to participate in a structured induction/orientation process.

	Round One	Round Two	Round Three
Strongly Disagree	10%	n/a	n/a
Disagree	5%	n/a	n/a
Slightly Disagree	15%	n/a	n/a
Slightly Agree	15%	n/a	n/a
Agree	30%	n/a	n/a
Strongly Agree	25%	n/a	n/a
Mean	0.950	n/a	n/a
Standard Deviation	2.038	n/a	n/a

Table 4-5 Continued

6.1. Work-related education orientation should be tailored to the individual learner--some begin after a single point of engagement, while others may continue orientation for a few days or a few weeks.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	6%	0%
Slightly Disagree	n/a	6%	13%
Slightly Agree	n/a	18%	7%
Agree	n/a	47%	47%
Strongly Agree	n/a	24%	20%
Mean	n/a	1.647	1.600
Standard Deviation	n/a	1.367	1.298

6.2. Work-related education orientation should offer many formats (flexible times, on-site/workplace, group, one-on-one, self-guided, mentoring, on-line, etc.).

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	0%	0%
Slightly Disagree	n/a	0%	0%
Slightly Agree	n/a	18%	7%
Agree	n/a	29%	13%
Strongly Agree	n/a	53%	73%
Mean	n/a	2.353	2.533
Standard Deviation	n/a	0.786	0.915

7. Work-related education should require a personal learning plan or negotiated contract for students.

	Round One	Round Two	Round Three
Strongly Disagree	5%	0%	0%
Disagree	5%	0%	0%
Slightly Disagree	5%	0%	0%
Slightly Agree	10%	12%	0%
Agree	60%	82%	100%
Strongly Agree	15%	6%	0%
Mean	-0.950	1.941	2.000
Standard Deviation	0.999	0.429	0.000

Table 4-5 Continued

7.1. Work-related education should assess prior learning to ensure students' learning experiences are not duplicative.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	0%	0%
Slightly Disagree	n/a	0%	0%
Slightly Agree	n/a	12%	13%
Agree	n/a	47%	67%
Strongly Agree	n/a	41%	20%
Mean	n/a	2.294	2.067
Standard Deviation	n/a	0.686	0.594

Principle III: According to O'Banion, "The learning college creates and offers as many options for learning as possible."

8. Work-related education should offer a full array of options to accommodate individual differences in learning styles, rates, aptitudes, and prior knowledge.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	0%	0%	0%
Slightly Agree	25%	12%	7%
Agree	35%	24%	7%
Strongly Agree	40%	65%	87%
Mean	2.150	2.529	2.800
Standard Deviation	0.813	0.717	0.561

8.1. Standards and institutional reputation should be evident within individualized learning options.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	0%	0%
Slightly Disagree	n/a	0%	0%
Slightly Agree	n/a	12%	0%
Agree	n/a	53%	73%
Strongly Agree	n/a	35%	27%
Mean	n/a	2.235	2.267
Standard Deviation	n/a	0.664	0.458

Table 4-5 Continued

8.2. Work-related education should follow an andragogical model of learning.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	6%	7%
Slightly Disagree	n/a	6%	0%
Slightly Agree	n/a	6%	0%
Agree	n/a	53%	67%
Strongly Agree	n/a	18%	20%
Mean	n/a	1.471	1.800
Standard Deviation	n/a	1.419	1.265

9. Work-related educational options should be seamless (not operated in isolation, so students can make reasonable changes in their programs).

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	0%	0%	0%
Slightly Agree	25%	12%	7%
Agree	40%	59%	53%
Strongly Agree	35%	29%	40%
Mean	2.100	2.176	2.333
Standard Deviation	0.788	0.636	0.617

10. Work-related education options should be trackless (same beginning courses for several programs, so students can explore before committing to a single track).

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	15%	6%	0%
Slightly Disagree	0%	0%	0%
Slightly Agree	25%	24%	27%
Agree	45%	65%	67%
Strongly Agree	15%	6%	7%
Mean	1.300	1.588	1.800
Standard Deviation	1.559	1.064	0.561

11. Work-related educational options should be classless (competency based), thereby providing mobility for students who may change institutions.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	10%	18%	13%

Table 4-5 Continued

	Round One	Round Two	Round Three
Slightly Disagree	5%	0%	0%
Slightly Agree	20%	0%	0%
Agree	50%	71%	67%
Strongly Agree	15%	12%	20%
Mean	1.400	2.176	1.667
Standard Deviation	1.465	0.529	1.543

Principle IV: According to O'Banion, "The learning college assists learners to form and participate in collaborative learning activities."

12. Work-related education should focus on creating communities among all participants (students, faculty, and other learning specialists) to support individual learning.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	0%	0%	0%
Slightly Agree	5%	0%	7%
Agree	40%	29%	20%
Strongly Agree	55%	71%	73%
Mean	2.500	2.706	2.667
Standard Deviation	0.607	0.470	0.617

13. Community colleges should form and support learning communities in the workplace via electronic forum (distance learning), video-on-demand, interactive training modules, [and (added) hybrid credit/customized programs].

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	0%	0%	0%
Slightly Agree	20%	6%	7%
Agree	55%	76%	93%
Strongly Agree	25%	18%	0%
Mean	2.050	2.118	1.933
Standard Deviation	0.686	0.485	0.258

14. Community colleges should establish learning communities and provide assessment services in the workplace.

	Round One	Round Two	Round Three
Strongly Disagree	0%	n/a	n/a
Disagree	0%	n/a	n/a
Slightly Disagree	5%	n/a	n/a

Table 4-5 Continued

	Round One	Round Two	Round Three
Slightly Agree	15%	n/a	n/a
Agree	50%	n/a	n/a
Strongly Agree	30%	n/a	n/a
Mean	2.000	n/a	n/a
Standard Deviation	0.427	n/a	n/a

14.1. Community colleges should establish learning communities in the workplace.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	0%	0%
Slightly Disagree	n/a	0	7%
Slightly Agree	n/a	29	13%
Agree	n/a	71	80%
Strongly Agree	n/a	0%	0%
Mean	n/a	1.706	1.667
Standard Deviation	n/a	0.407	0.816

14.2. Community colleges should assess the relevance of course instruction in the workplace.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	0%	0%
Slightly Disagree	n/a	6%	0%
Slightly Agree	n/a	0%	0%
Agree	n/a	35%	33%
Strongly Agree	n/a	59%	67%
Mean	n/a	2.412	2.667
Standard Deviation	n/a	1.004	0.488

Principle V: According to O'Banion, "The learning college defines the roles of learning facilitators by the needs of the learners."

15. Work-related education personnel should be hired on the basis of department or course needs.

	Round One	Round Two	Round Three
Strongly Disagree	5%	0%	0%
Disagree	25%	24%	13%
Slightly Disagree	0%	0%	0%
Slightly Agree	15%	0%	0%
Agree	35%	53%	67%
Strongly Agree	20%	24%	20%

Table 4-5 Continued

	Round One	Round Two	Round Three
Mean	0.800	1.294	1.667
Standard Deviation	2.093	1.929	1.563

15.1. Work-related education personnel should be hired as course content experts who adjust to learner and industry needs which change over time.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	0%	0%
Slightly Disagree	n/a	0%	0%
Slightly Agree	n/a	6%	0%
Agree	n/a	53%	53%
Strongly Agree	n/a	35%	47%
Mean	n/a	2.176	2.467
Standard Deviation	n/a	0.809	0.516

15.2. Work-related education personnel should be hired based on their pedagogical content knowledge and who adjust to learner needs which change over time.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	n/a	0%
Disagree	n/a	n/a	0%
Slightly Disagree	n/a	n/a	7%
Slightly Agree	n/a	n/a	7%
Agree	n/a	n/a	73%
Strongly Agree	n/a	n/a	13%
Mean	n/a	n/a	1.867
Standard Deviation	n/a	n/a	0.915

16. Work-related education personnel should be hired based on what learners need.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	5%	6%	0%
Slightly Agree	10%	12%	13%
Agree	40%	24%	7%
Strongly Agree	45%	53%	80%
Mean	2.200	2.118	2.667
Standard Deviation	1.005	1.219	0.724

Table 4-5 Continued

17. Work-related education students should also participate as learning facilitators--to assist other learners, to free professional staff for other roles and to reduce personnel costs.

	Round One	Round Two	Round Three
Strongly Disagree	0%	n/a	n/a
Disagree	10%	n/a	n/a
Slightly Disagree	0%	n/a	n/a
Slightly Agree	20%	n/a	n/a
Agree	45%	n/a	n/a
Strongly Agree	25%	n/a	n/a
Mean	1.650	n/a	n/a
Standard Deviation	1.424	n/a	n/a

17.1. Work-related education students should participate as learning facilitators--to assist other learners.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	0%	0%
Slightly Disagree	n/a	0%	0%
Slightly Agree	n/a	18%	0%
Agree	n/a	59%	87%
Strongly Agree	n/a	12%	13%
Mean	n/a	1.706	2.133
Standard Deviation	n/a	0.849	0.352

17.2. Work-related education students should participate as learning facilitators--to free professional staff for other roles and to reduce personnel costs.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	18%	n/a
Disagree	n/a	18%	n/a
Slightly Disagree	n/a	24%	n/a
Slightly Agree	n/a	24%	n/a
Agree	n/a	18%	n/a
Strongly Agree	n/a	0%	n/a
Mean	n/a	-0.529	n/a
Standard Deviation	n/a	1.841	n/a

Principle VI: According to O'Banion, "The learning college and its learning facilitators succeed only when improved and expanded learning can be documented for its learners."

Table 4-5 Continued

18. Community colleges should require work-related educational competencies for entrance.

	Round One	Round Two	Round Three
Strongly Disagree	10%	12%	n/a
Disagree	50%	59%	n/a
Slightly Disagree	0%	6%	n/a
Slightly Agree	10%	0%	n/a
Agree	25%	18%	n/a
Strongly Agree	5%	6%	n/a
Mean	-0.550	-1.000	n/a
Standard Deviation	2.089	1.936	n/a

19. Community colleges should require work-related educational competencies for exit (at multiple points [Round Two added]).

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	0%	0%	0%
Slightly Agree	15%	0%	7%
Agree	60%	71%	53%
Strongly Agree	25%	29%	40%
Mean	2.050	2.294	2.333
Standard Deviation	0.686	0.470	0.617

20. Portfolio assessment should be the primary means by which work-related learning is documented.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	15%	12%	7%
Slightly Disagree	15%	0%	0%
Slightly Agree	35%	53%	0%
Agree	30%	35%	87%
Strongly Agree	5%	0%	7%
Mean	0.650	1.000	0.867
Standard Deviation	1.565	1.225	0.834

Table 4-5 Continued

20.1. Certifications and/or licenses should be the primary means by which work-related learning is documented.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	6%	7%
Slightly Disagree	n/a	12%	13%
Slightly Agree	n/a	12%	7%
Agree	n/a	65%	73%
Strongly Agree	n/a	6%	0%
Mean	n/a	1.353	1.267
Standard Deviation	n/a	1.387	1.387

21.1. If national or state standards are not available, community colleges should employ specialists or contract to develop standards.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	6%	0%
Slightly Disagree	n/a	24%	27%
Slightly Agree	n/a	24%	20%
Agree	n/a	35%	53%
Strongly Agree	n/a	12%	0%
Mean	n/a	0.941	1.000
Standard Deviation	n/a	1.560	1.309

21.2. If national or state standards are not available, community colleges should partner with industry to share costs to develop standards.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	0%	0%
Slightly Disagree	n/a	18%	7%
Slightly Agree	n/a	18%	20%
Agree	n/a	47%	60%
Strongly Agree	n/a	18%	7%
Mean	n/a	1.471	1.533
Standard Deviation	n/a	1.328	0.990

Section B: Other Key Issues, Areas of Focus, Components of Work-related Education

Please consider how community colleges should define work-related education in the context of the institution, internal and external needs, and political considerations.

Table 4-5 Continued

B-1. Mission and organization. Assess mission and organization in terms of the purpose and products of work-related education (ends, not the means).

22. The mission statement should clearly claim the role of work-related education equal to other mission tenants.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	5%	6%	0%
Slightly Disagree	5%	0%	0%
Slightly Agree	10%	6%	13%
Agree	35%	41%	20%
Strongly Agree	45%	47%	67%
Mean	2.000	2.176	2.533
Standard Deviation	1.376	1.237	0.743

22.1. Work-related education should be integrated with general and transfer education (create an integrated model).

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	0%	0%
Slightly Disagree	n/a	0%	0%
Slightly Agree	n/a	6%	0%
Agree	n/a	76%	87%
Strongly Agree	n/a	18%	13%
Mean	n/a	2.118	2.133
Standard Deviation	n/a	0.485	0.352

23. Work-related education should be, politically (centrally planned and funded), an important part of the organization.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	5%	0%	0%
Slightly Agree	15%	6%	13%
Agree	35%	29%	0%
Strongly Agree	45%	65%	87%
Mean	2.150	2.588	2.733
Standard Deviation	1.040	0.618	0.704

Table 4-5 Continued

23.1. Work-related education should be autonomous.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	13%
Disagree	n/a	18%	27%
Slightly Disagree	n/a	18%	27%
Slightly Agree	n/a	35%	27%
Agree	n/a	24%	7%
Strongly Agree	n/a	6%	0%
Mean	n/a	0.471	-0.800
Standard Deviation	n/a	1.625	1.612

23.2. Work-related education should retain an entrepreneurial perspective.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	n/a	0%
Disagree	n/a	n/a	7%
Slightly Disagree	n/a	n/a	0%
Slightly Agree	n/a	n/a	27%
Agree	n/a	n/a	53%
Strongly Agree	n/a	n/a	13%
Mean	n/a	n/a	1.600
Standard Deviation	n/a	n/a	0.980

B-2. Funding. Assess the viability of work-related education in the context of funding priorities and strategies to modify the priorities of those who control the funding.

24. Community college funding mechanisms should acknowledge the centrality (deal effectively and fairly with all aspects) of work-related education.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	5%	0%	0%
Slightly Agree	10%	0%	7%
Agree	45%	41%	20%
Strongly Agree	40%	59%	73%
Mean	2.150	2.588	2.667
Standard Deviation	0.988	0.507	0.617

Table 4-5 Continued

25. Funding formulas should be influenced to include the needs of the emerging workforce on state, regional, national, and global basis.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	5%	0%	0%
Slightly Agree	10%	0%	0%
Agree	45%	47%	27%
Strongly Agree	40%	53%	67%
Mean	2.150	2.529	2.733
Standard Deviation	0.988	0.514	0.458

26. Funding formulas should be influenced to include the needs of [how] instructional innovation [improves] work-related education. (Round Two added)

	Round One	Round Two	Round Three
Strongly Disagree	0%	6%	0%
Disagree	0%	0%	0%
Slightly Disagree	5%	0%	0%
Slightly Agree	5%	0%	0%
Agree	60%	65%	100%
Strongly Agree	30%	29%	0%
Mean	2.100	2.000	2.000
Standard Deviation	0.912	1.369	0.000

26.2. Colleges should partner with the private sector and non-profits to obtain financial support for work-related education students.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	0%	0%
Slightly Disagree	n/a	0%	0%
Slightly Agree	n/a	0%	0%
Agree	n/a	65%	93%
Strongly Agree	n/a	35%	7%
Mean	n/a	2.353	2.067
Standard Deviation	n/a	0.493	0.258

B-3. Needs assessment and documenting college success. Assess work-related education in terms of labor market data collection, exit requirements compared to industry expectations, and economic development of the community.

Table 4-5 Continued

27. Colleges should be the experts at monitoring local labor markets and collecting data for program planning and needs assessment.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	10%	0%	0%
Slightly Disagree	5%	6%	13%
Slightly Agree	0%	6%	0%
Agree	55%	82%	87%
Strongly Agree	30%	6%	0%
Mean	1.750	1.824	1.600
Standard Deviation	1.552	0.809	1.056

27.1. Colleges should rely on economists or researchers in higher education to monitor local labor markets and collect data for program planning and needs assessment.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	12%	7%
Slightly Disagree	n/a	29%	7%
Slightly Agree	n/a	18%	40%
Agree	n/a	35%	47%
Strongly Agree	n/a	6%	0%
Mean	n/a	0.529	1.133
Standard Deviation	n/a	1.663	1.187

27.2. Colleges should rely on state and/or national collection systems for labor market data for program planning and needs assessment.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	n/a	0%
Disagree	n/a	n/a	7%
Slightly Disagree	n/a	n/a	0%
Slightly Agree	n/a	n/a	27%
Agree	n/a	n/a	67%
Strongly Agree	n/a	n/a	0%
Mean	n/a	n/a	1.467
Standard Deviation	n/a	n/a	1.060

Table 4-5 Continued

28. Success should be measured by work-related education program, certificate, or degree completion rates.

	Round One	Round Two	Round Three
Strongly Disagree	5%	0%	0%
Disagree	20%	12%	7%
Slightly Disagree	0%	6%	7%
Slightly Agree	35%	41%	73%
Agree	25%	35%	13%
Strongly Agree	10%	0%	0%
Mean	0.600	0.824	0.800
Standard Deviation	1.818	1.334	1.014

29. Success should be measured in terms of job generation, upgrades, retraining, and economic development.

	Round One	Round Two	Round Three
Strongly Disagree	0%	n/a	n/a
Disagree	10%	n/a	n/a
Slightly Disagree	0%	n/a	n/a
Slightly Agree	15%	n/a	n/a
Agree	35%	n/a	n/a
Strongly Agree	30%	n/a	n/a
Mean	1.550	n/a	n/a
Standard Deviation	1.538	n/a	n/a

29.1. Success should be measured by job retention rates, employment rates, and increased wages.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	0%	7%
Slightly Disagree	n/a	12%	0%
Slightly Agree	n/a	29%	27%
Agree	n/a	47%	67%
Strongly Agree	n/a	6%	0%
Mean	n/a	1.294	1.467
Standard Deviation	n/a	1.105	1.060

Table 4-5 Continued

29.2. Success should be measured by each student's educational attainment/skill acquisition--including those who complete one class and those who do not complete a certificate or degree.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	0%	0%
Slightly Disagree	n/a	0%	0%
Slightly Agree	n/a	12%	13%
Agree	n/a	53%	67%
Strongly Agree	n/a	29%	20%
Mean	n/a	2.059	2.067
Standard Deviation	n/a	0.827	0.594

B-4. Instruction, programs, and delivery systems. Assess work-related education in terms of instructional approaches, college programming, improvement processes.

30. The focus of work-related education should be on entry-level skills.

	Round One	Round Two	Round Three
Strongly Disagree	5%	6%	n/a
Disagree	20%	29%	n/a
Slightly Disagree	45%	53%	n/a
Slightly Agree	20%	12%	n/a
Agree	5%	0%	n/a
Strongly Agree	5%	0%	n/a
Mean	-0.450	-1.176	n/a
Standard Deviation	1.572	1.015	n/a

31. The focus of work-related education should be on learning-to-learn skills, e.g., orientation to lifelong learning.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	5%	0%	0%
Slightly Disagree	15%	6%	7%
Slightly Agree	40%	71%	67%
Agree	35%	24%	13%
Strongly Agree	5%	0%	7%
Mean	1.00	1.118	1.067
Standard Deviation	1.298	0.697	0.884

Table 4-5 Continued

32. Work-related education should focus on preparation for a single job requiring a focused set of skills.

	Round One	Round Two	Round Three
Strongly Disagree	15%	18%	n/a
Disagree	30%	29%	n/a
Slightly Disagree	40%	47%	n/a
Slightly Agree	5%	6%	n/a
Agree	10%	0%	n/a
Strongly Agree	0%	0%	n/a
Mean	-1.200	-1.529	n/a
Standard Deviation	1.436	1.007	n/a

33. Work-related education should focus on learning skills with broad application to several similar occupations.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	5%	0%	0%
Slightly Agree	20%	6%	13%
Agree	55%	82%	73%
Strongly Agree	20%	6%	13%
Mean	1.850	1.882	2.000
Standard Deviation	0.933	0.600	0.535

33.1. Work-related education should reflect the needs of local businesses (not be limited to any specific level of skill development).

	Round One	Round Two	Round Three
Strongly Disagree	n/a	0%	0%
Disagree	n/a	0%	0%
Slightly Disagree	n/a	6%	0%
Slightly Agree	n/a	24%	13%
Agree	n/a	47%	73%
Strongly Agree	n/a	18%	13%
Mean	n/a	1.647	2.000
Standard Deviation	n/a	1.057	0.535

Table 4-5 Continued

34. Work-related education should be on an equal footing with regular college programming.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	5%	0%	0%
Slightly Agree	5%	0%	0%
Agree	45%	47%	40%
Strongly Agree	45%	47%	60%
Mean	2.250	2.353	2.600
Standard Deviation	0.967	0.786	0.507

35. Work-related education should be considered as add-on revenue centers separate from traditional credit programs.

	Round One	Round Two	Round Three
Strongly Disagree	20%	12%	n/a
Disagree	25%	35%	n/a
Slightly Disagree	25%	29%	n/a
Slightly Agree	15%	18%	n/a
Agree	10%	6%	n/a
Strongly Agree	5%	0%	n/a
Mean	-0.850	-1.059	n/a
Standard Deviation	1.872	1.478	n/a

B-5. Staffing. Assess work-related education in terms of staffing decisions, workplace experience levels, and student placement services.

36. Colleges should establish a staffing pattern (hard-money and full-time positions) relationship to ensure work-related education programs receive their fair share.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	0%	0%	0%
Slightly Agree	25%	18%	0%
Agree	55%	59%	73%
Strongly Agree	20%	24%	27%
Mean	1.950	2.059	2.267
Standard Deviation	0.686	0.659	0.458

Table 4-5 Continued

37. Work-related education faculty and staff need real workplace experience to communicate effectively with students.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	5%	0%	0%
Slightly Agree	20%	12%	13%
Agree	45%	41%	13%
Strongly Agree	30%	41%	73%
Mean	1.950	2.176	2.600
Standard Deviation	0.999	0.883	0.737

38. Work-related education advisory committees provide sufficient "real world of work" input to faculty and staff.

	Round One	Round Two	Round Three
Strongly Disagree	5%	0%	0%
Disagree	5%	0%	7%
Slightly Disagree	20%	12%	7%
Slightly Agree	25%	47%	33%
Agree	30%	41%	47%
Strongly Agree	15%	0%	7%
Mean	0.850	1.176	1.267
Standard Deviation	1.755	0.951	1.280

39. Student services and advising should be the same for work-related education students as it is for traditional credit students.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	15%	6%	7%
Slightly Disagree	15%	0%	0%
Slightly Agree	20%	0%	0%
Agree	40%	82%	93%
Strongly Agree	10%	12%	0%
Mean	0.850	1.882	1.733
Standard Deviation	1.694	1.054	1.033

Table 4-5 Continued

40. The student placement office should primarily focus on identifying career openings and pathways.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	15%	6%	13%
Slightly Agree	30%	0%	7%
Agree	50%	94%	80%
Strongly Agree	5%	0%	0%
Mean	1.300	1.824	1.533
Standard Deviation	1.129	0.728	1.060

41. The student placement office should primarily focus on short-term training for immediate employment.

	Round One	Round Two	Round Three
Strongly Disagree	10%	12%	n/a
Disagree	25%	29%	n/a
Slightly Disagree	30%	41%	n/a
Slightly Agree	20%	12%	n/a
Agree	15%	6%	n/a
Strongly Agree	0%	0%	n/a
Mean	-0.600	-1.118	n/a
Standard Deviation	1.667	1.364	n/a

B-6. Coordination and planning. Assess whether the thinking and planning for work-related education is focused on where students will find work or by other criteria.

42. Programming and planning should take into account regional, national, and global trends.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	0%	0%	0%
Slightly Agree	5%	0%	0%
Agree	45%	12%	7%
Strongly Agree	50%	82%	93%
Mean	2.450	2.706	2.933
Standard Deviation	0.605	0.772	0.258

Table 4-5 Continued

43. Community colleges should cooperate with one another to accomplish regional and national work-related education planning collectively.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	0%	0%	0%
Slightly Agree	5%	0%	0%
Agree	50%	24%	13%
Strongly Agree	45%	71%	87%
Mean	2.400	2.588	2.867
Standard Deviation	0.598	0.795	0.352

44. Community colleges should seek to build coalitions and partnerships with other colleges, organizations, and business to define roles and a vision for work-related education.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	0%	0%	0%
Slightly Agree	0%	0%	0%
Agree	25%	6%	13%
Strongly Agree	75%	88%	87%
Mean	2.750	2.765	2.867
Standard Deviation	0.444	0.752	0.352

44.1. Each community college should be the primary coordinator between high schools, their college, and universities (circular linkages) to eliminate duplication and gaps in student learning.

	Round One	Round Two	Round Three
Strongly Disagree	n/a	5%	0%
Disagree	n/a	0%	0%
Slightly Disagree	n/a	0%	7%
Slightly Agree	n/a	0%	0%
Agree	n/a	12%	13%
Strongly Agree	n/a	82%	80%
Mean	n/a	2.706	2.600
Standard Deviation	n/a	0.772	1.056

B-7. National proclamation and national database for work-related education. Assess work-related education in terms of a wide-spread vision and supporting data that reflect the strengths and successes of community colleges.

Table 4-5 Continued

45. A national proclamation should be created and promoted which defines the role of the community college in work-related education.

	Round One	Round Two	Round Three
Strongly Disagree	5%	0%	0%
Disagree	0%	0%	0%
Slightly Disagree	10%	6%	0%
Slightly Agree	40%	59%	67%
Agree	15%	6%	7%
Strongly Agree	30%	29%	27%
Mean	1.350	1.529	1.600
Standard Deviation	1.599	1.125	0.910

46. A national database reflecting community college potential and achievement should be created to assist in identifying limitations and areas of growth and improvement.

	Round One	Round Two	Round Three
Strongly Disagree	0%	0%	0%
Disagree	5%	0%	0%
Slightly Disagree	5%	0%	0%
Slightly Agree	45%	59%	60%
Agree	20%	24%	27%
Strongly Agree	25%	18%	13%
Mean	1.450	1.588	1.533
Standard Deviation	1.317	0.795	0.743

Confidence in the Accuracy of the Delphi Technique

The accuracy of the Delphi technique for this research study was confirmed by a thorough examination of the results during the three-round process. Upon comparing data from all iterative surveys by the appropriate descriptive statistics round-by-round, it was evident that the Delphi technique produced “a communication structure aimed at producing a detailed examination and discussion” with a certain quantification of the participants’ viewpoints (Turoff & Hiltz, 1996). The levels of agreement were concentrated on those principles and components which could be identified, categorized, and ranked to derive a common definition for work-related education. By sharing the

overall group frequencies for the statements after each round, as well as the panel of experts' qualitative responses, the participants could effectively contribute to the development of the content of the scale. The content of the scale progressively matched the content domain as participants provided qualitative responses on what they considered to be the constructs of interest, thus ensuring content validity. In this process, the Delphi technique and the survey procedures offered participants opportunity to reconsider viewpoints and consider other items that were introduced. That the second and third rounds of the Delphi afforded the panel of experts an opportunity to change their initial ratings in light of this new information further ensured that the results could be used for well-founded conclusions. Statistically significant differences found in the average total scores between Round One and Round Three indicated that the panel of experts had fully developed the Delphi technique for this study. The levels of agreement and consensus that were further achieved demonstrated a level of confidence. This confidence, combined with the research procedures and the study attributes, promoted reaching a superior group view of the task at hand through the phenomenon "collective intelligence" (Turoff & Hiltz, 1996, p. 80).

Data Relationships to the Research Questions

The purpose of this research was to complement and add to the body of knowledge pertaining to work-related education at community colleges. The conceptual framework that guided this study was twofold. First, from both theoretical and practical perspectives, this study was conducted to test if work-related education conformed to the six principles of the learning college (O'Banion, 1997) and to determine whether or not the learning college principles could be supplemented by examining additional complementary components of work-related education. Second, the Delphi technique

was used as a research method to determine whether or not the community college leaders who participated in this study as the panel of experts could reach consensus and levels of agreement. This agreement could further add to the body the knowledge--a relationship of principles and components by identifying, categorizing, and ranking such principles and components. This knowledge could model a common definition for work-related education at community colleges. Specifically, this study addressed the following primary and secondary research questions:

Primary Questions

1. Which, if not all, of O'Banion's six principles of "the learning college" could be associated with work-related education?
2. What other components could be identified for the work-related education function at community colleges?
3. What were the most strongly advocated principles and components supporting work-related education?

Secondary Questions

Additionally, secondary questions were identified that could be answered as a result of this study. These questions were answered through a compilation of answers to the primary research questions.

1. Could a selected group of community college leaders reach consensus, using a Delphi technique, on what principles and components could be identified to derive a common definition for work-related education?
2. Could meaningful relationships be confirmed between the six principles and the identified components to derive a common definition for work-related education?

By participating in this study, the community college leaders acted as a panel of experts assisting in the research. The panel's purpose was to derive a common definition for work-related education at community colleges. The research questions and subsequent responses demonstrate the relationships that were developed from the data.

Research Question Pertaining to Principles of the Learning College

The first research question was based on investigating whether or not work-related education could be defined in terms of O'Banion's (1997) six principles of the learning college. The research question was framed as:

1. Which, if not all, of O'Banion's six principles of "the learning college" could be associated with work-related education?

The analyses which follow were based on the data from Round Three, the final Delphi survey. With the exception of low levels of agreement and lack of consensus on how learning is documented and how competency standards are developed (Principle VI), the study answered the first research question in a supportive manner for the first five principles of the learning college. It was apparent that the panel of experts generally agreed that the first five of the six principles of the learning college should apply to work-related education, as identified. By Round Three, 28 out of the 29 statements pertaining to the principles of the learning college were rated at means between "Slightly Agree" and "Strongly Agree." The means should be viewed according to the rating scale, which was coded as: "Strongly Disagree" = -3; "Disagree" = -2; "Slightly Disagree" = -1; "Slightly Agree" = +1; "Agree" = +2; and "Strongly Agree" = +3. A neutral option or response choice of "undecided," "no opinion," "uncertain," or "don't know" was intentionally left out and deemed reasonable. Virtually all participants had an opinion and corresponding level of agreement for the items. Otherwise, as per the informed consent, it was clear to the participants that they did not have to respond to every question. The participants could take a "no judgment" view, which is a practice commonly applied to Delphi studies (Adler & Sainsbury, 1996, p. 188). Supporting the validity of the Round Three instrument, only four out of the 29 statements with overall

levels of positive agreement posted greater than one standard deviation from their means. Analysis of all five statements with standard deviations higher than one standard deviation showed a lack of consensus by the panel of experts, as identified in the following tables.

Principle I

The three statements pertaining to **Principle I--*the learning college creates substantive change in its learners*--** were rated by the panel of experts at means above "Agree" and approaching "Strongly Agree." The specific statements pertaining to Principle I were reviewed and compared with the means, the standard deviations, and the confidence intervals, as presented in Table 4-6.

Table 4-6 Principle I Statements in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
1. Work-related education should create substantive change in its learners.	2.267	0.704	1.898	2.635
2. Work-related education should "kindle" (stimulate) new ways of seeing, thinking, and doing--in dramatic "first" events and new discoveries.	2.667	0.617	2.343	2.990
3. Work-related education should "kindle" (stimulate) new ways of seeing, thinking, and doing--incrementally in day-to-day experiences.	2.267	0.594	1.956	2.578

In particular, the statements' standard deviations were at or under 0.7 which suggested that the panel of experts viewed these specific statements and Principle I as complementing work-related education.

Principle II

Principle II--***the learning college engages learners as full partners in the learning process, with learners assuming primary responsibility for their own choices***--referred to a statement about the specific "orientation" format for new work-related education learners. By exception, specific statements pertaining to Principle II were reviewed and compared with the means, the standard deviations, and the confidence intervals, as presented in Table 4-7.

Table 4-7 Principle II Statements by Exception in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
6.1 Work-related education orientation should be tailored to the individual learner--some begin after a single point of engagement, while others may continue orientation for a few days or a few weeks.	1.600	1.298	0.920	2.280
6.2 Work-related education orientation should offer many formats (flexible times, on-site/workplace, group, one-on-one, self-guided, mentoring, on-line, etc.).	2.533	0.915	2.054	3.013

The statement presented an orientation format that "should be tailored to the individual learner" and offered the option of a variable length of orientation engagement "for a few days or a few weeks." This statement (6.1) was rated with a mean of 1.600 and a standard deviation of 1.298. Detailed analysis of the data revealed a lack of consensus across the scale by one-half of the participants. Statement 6.2, pertaining to "orientation should offer many formats," was rated with a mean of 2.533 and standard deviation of

0.915, which indicates the panel of experts viewed this statement as a more acceptable alternative to Statement 6.1.

Principle III

Principle III--*the learning college creates and offers as many options for learning as possible*--contained two statements of interest. By exception, specific statements pertaining to Principle III were reviewed and compared with the means, the standard deviations, and the confidence intervals, as presented in Table 4-8.

Table 4-8 Principle III Statements by Exception in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
8.2 Work-related education should follow an andragogical model of learning.	1.800	1.265	1.137	2.463
11. Work-related educational options should be classless (competency- based), thereby providing mobility for students who may change institutions.	1.667	1.543	0.858	2.475

The first statement was added during Round Two, based on a participant's comment that "work-related education should follow an andragogical model of learning." This statement (8.2) was rated upwards to "Agree," with a mean of 1.800 and a standard deviation of 1.265. A detailed comparison between rounds revealed that lack of agreement across the range in Round Two and was replaced by two-thirds consensus in Round Three. This suggested that the andragogical model of learning may not be the best fit for work-related education. The second statement (11) of interest was carried forward from the initial survey and pertained to "work-related education options [that] should be

classless" or competency-based for learners to be able to change institutions without starting over to any great extent. This statement (11) was rated with a mean of 1.667, "Slightly Agree to Agree," and a standard deviation of 1.543. Again, the analysis suggests this work-related education option was not universally supported by the panel.

Principle IV

Principle IV--***the learning college assists learners to form and participate in collaborative learning activities***--supported the study with two of the highest levels of agreement (Statement 12, mean 2.667; Statement 14.2, mean 2.667) and two of the smaller standard deviations (Statement 13, standard deviation, 0.258; Statement 14.2, standard deviation, 0.488). The specific statements pertaining to Principle IV were reviewed and compared with the means, the standard deviations, and the confidence intervals, as presented in Table 4-9.

Table 4-9 Principle IV Statements in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
12. Work-related education should focus on creating communities among all participants (students, faculty, and other learning specialists) to support individual learning.	2.667	0.617	2.343	2.990
13. Community colleges should form and support learning communities in the workplace via electronic forum (distance learning), video-on-demand, interactive training modules, [and (added) hybrid credit/ customized programs].	1.933	0.258	1.798	2.069

Table 4-9 Continued

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
14.1 Community colleges should establish learning communities in the workplace.	1.667	0.816	1.239	2.094
14.2 Community colleges should assess the relevance of course instruction in the workplace.	2.667	0.488	2.411	2.922

Overall, the panel of experts was in agreement about Principle IV complementing work-related education by creating learning communities to support individual learning and that those learning communities should extend to the workplace.

Principle V

Principle V--***the learning college defines the roles of learning facilitators by the needs of the learners***--contained a statement from the initial survey, which pertained to hiring work-related education personnel on the "basis of department or course needs." This statement (15) was rated with a mean of 1.667, "Slightly Agree to Agree," and a standard deviation of 1.543. By exception, this and other specific statements pertaining to Principle V were reviewed and compared with the means, the standard deviations, and the confidence intervals, as presented in Table 4-10.

Table 4-10 Principle V Statements by Exception in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
15. Work-related education personnel should be hired on the basis of department or course needs.	1.667	1.543	0.858	2.475

Table 4-10 Continued

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
15.1 Work-related education personnel should be hired as course content experts who adjust to learner and industry needs which change over time.	2.467	0.516	2.196	2.737
15.2 Work-related education personnel should be hired based on their pedagogical content knowledge and who adjust to learner needs which change over time.	1.867	0.915	1.387	2.346
16. Work-related education personnel should be hired based on what learners need.	2.667	0.724	2.288	3.046

A detailed analysis of the data revealed the ratings were impacted by a lack of consensus, as well as a lack of agreement with 13 percent of the participants taking issue and disagreeing with this statement. This suggests that hiring personnel on the basis of department or course needs was not universally supported by the panel of experts. This lack of agreement suggests that the panel of experts embraced the specific principle through stronger consensus on the other statements (15.1, 15.2, and 16), which focused specifically on learner needs. The panel of experts endorsed another statement (17.1) with a level of agreement (mean 2.133, standard deviation 0.352), which stated that "work-related education students should participate as learning facilitators--to assist other learners."

Principle VI

The two statements which were rated at averages below "Slightly Agree," pertained to **Principle VI**--***the learning college and its learning facilitators succeed only when improved and expanded learning can be documented for its learners***. By exception, specific statements pertaining to Principle VI were reviewed and compared with the means, the standard deviations, and the confidence intervals, as presented in Table 4-11.

Table 4-11 Principle VI Statements by Exception in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
20. Portfolio assessment should be the primary means by which work-related learning is documented.	0.867	0.834	0.430	1.303
20.1 Certifications and/or licenses should be the primary means by which work-related learning is documented.	1.267	1.387	0.540	1.993
21.1 If national or state standards are not available, community colleges should employ specialists or contract to develop standards.	1.000	1.309	0.314	1.686
21.2 If national or state standards are not available, community colleges should partner with industry to share costs to develop standards.	1.533	0.990	1.015	2.052

In particular, these statements were about portfolio assessment as a primary means of documenting learning (Statement 20, mean 0.867, standard deviation 0.834) and community colleges employing specialists to develop standards (Statement 21.1, mean

1.000, standard deviation 1.309). The low mean for Statement 20, which nearly all participants ranked as "Slightly Agree" with one outlier at "Disagree," suggested that the panel of experts did not endorse portfolio assessment as the primary means to document learning for work-related education. Likewise, the experts' views did not universally support any of the alternatives, for example, use of certificates and licenses to document learning had one-fifth of the participants rating "Slightly Disagree to Disagree" (Statement 20.1, mean 1.267, standard deviation 1.387). A detailed analysis of the data revealed that the ratings for community colleges, which employed specialists to develop standards (Statement 21.1, mean 1.000, standard deviation 1.309), were impacted by one-half of the participants' diverging ratings across the Likert scale from "Slightly Disagree" to "Slightly Agree" and the other half at "Agree." This lack of consensus suggested that the panel of experts did not endorse community colleges "employing specialists or contracting" as the primary means to develop standards for work-related education. Rather, the experts' views were further supported by the higher mean posted for an alternative, for example, partnering with industry to share costs for developing standards (Statement 21.2, mean 1.533, standard deviation 0.990).

Research Question Pertaining to Components of Work-related Education

The second research question was based on investigating whether or not work-related education could be defined in terms of components, as identified in the literature, and considered complementary to the principles of the learning college. The second primary research question was framed as:

2. What other components could be identified for the work-related education function at community colleges?

The analyses that follow were based on the data from Round Three, the final Delphi survey. The study answered the second research question in a supportive manner. With the exception of the low levels of agreement and lack of consensus on “needs assessment and documenting college success” (Component 3), the study answered the second research question in a supportive manner for the other six components identified with work-related education. It was apparent that the panel of experts generally agreed that six of the seven components should apply to work-related education, as identified in the study. By Round Three, 28 out of the 30 statements in the components section of Round Three were rated at means between “Slightly Agree” and “Strongly Agree.” The means should be viewed according to the rating scale, which was coded as: “Strongly Disagree” = -3, “Disagree” = -2, “Slightly Disagree” = -1, “Slightly Agree” = +1, “Agree” = +2, and “Strongly Agree” = +3. A neutral option or response choice of "undecided," "no opinion," "uncertain," or "don't know" was intentionally left out and deemed reasonable as virtually all participants had an opinion and corresponding level of agreement for the items. Otherwise, as per the informed consent, it was clear to the participants that they did not have to respond to every question. The participants could take a “no judgment” view, which is a practice commonly applied to Delphi studies (Adler & Sainsbury, 1996, p. 188). Testing the validity of the Round Three instrument, 9 out of the 30 statements, with overall levels of positive agreement, posted greater than one standard deviation from their means. Analysis of all nine statements with standard deviations higher than one standard deviation showed a lack of consensus by the panel of experts, as identified in the Tables 4-12 through 4-19.

Mission and Organization

Three out of the five statements pertaining to the mission and organization component were rated at averages between "Agree" and "Strongly Agree," with standard deviations ranging from 0.352 to 0.743. By exception, specific statements pertaining to the mission and organization component were reviewed and compared with the means, the standard deviations, and the confidence intervals, as presented in Table 4-12.

Table 4-12 Mission and Organization Statements by Exception in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
23.1. Work-related education should be autonomous.	-0.800	1.612	-1.645	0.045
23.2. Work-related education should retain an entrepreneurial perspective.	1.600	1.183	0.980	2.220

The two statements, which were rated with the lowest means, also had standard deviations greater than one. Statement 23.1 pertained to whether or not work-related education should be autonomous (mean -0.800, standard deviation 1.612), and Statement, 23.2 pertained to whether or not work-related education should retain an entrepreneurial perspective (mean 1.600, standard deviation 1.183). Both of these statements were additions to the initial survey based on participant qualitative input. A detailed analysis of the data and the consensus, which formed on low levels of agreement with the statement, revealed that the panel of experts did not endorse that "work-related education should be autonomous." This was put in the context of the institution, internal and external needs, or political considerations, as framed by mission and organization. In addition, the "entrepreneurial perspective" statement was impacted by half of the

participants' diverging ratings across the Likert scale from "Disagree" to "Slightly Agree" and "Strongly Agree" with the other half at "Agree." This lack of consensus suggested that the panel of experts could not agree on an entrepreneurial perspective for work-related education.

Funding

It was apparent, based on the high levels of agreement and consensus reached by the panel of experts, that funding was a highly endorsed component of work-related education. All four statements pertaining to the funding component had means at or above "Agree" to "Strongly Agree" with standard deviations ranging from zero standard deviation (Statement 26.1) to 0.617 (Statement 24). The specific statements pertaining to the funding component were reviewed and compared with the means, the standard deviations, and the confidence intervals, as presented in Table 4-13.

Table 4-13 Funding Statements in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
24. Community college funding mechanisms should acknowledge the centrality (deal effectively and fairly with all aspects) of work-related education.	2.667	0.617	2.343	2.990
25. Funding formulas should be influenced to include the needs of the emerging workforce on state, regional, national, and global basis.	2.733	0.458	2.494	2.973

Table 4-13 Continued

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
26. Funding formulas should be influenced to include [how] instructional innovation [improves] work-related education.	2.000	0.000	n/a	n/a
26.2 Colleges should partner with the private sector and non-profits to obtain financial support for work-related education students.	2.067	0.258	1.931	2.202

Needs Assessment and Documenting Success

Needs assessment. All three statements pertaining to the needs assessment subcomponent were rated at averages between "Slightly Agree" and "Agree," with all posting standard deviations greater than one. The specific statements pertaining to the needs assessment subcomponent were reviewed and compared with the means, the standard deviations, and the confidence intervals, as presented in Table 4-14.

Table 4-14 Needs Assessment Subcomponent Statements in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
27. Colleges should be the experts at monitoring local labor markets and collecting data for program planning and needs assessment.	1.600	1.056	1.047	2.153

Table 4-14 Continued

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
27.1 Colleges should rely on economists or researchers in higher education to monitor local labor markets and collect data for program planning and needs assessment.	1.133	1.187	0.511	1.755
27.2 Colleges should rely on state and/or national collection systems for labor market data for program planning and needs assessment.	1.427	1.060	0.911	2.022

Statement 27 (mean 1.600, standard deviation 1.056) reached an 87 percent consensus rating of "Agree" with two ratings of disagreement. This was the panel of experts' leading subcomponent for community colleges taking ownership to monitor "local labor markets and collect data for program planning and needs assessment." Statement 27.1 (mean 1.133, standard deviation 1.187) had a nearly 50/50 split between ratings of "Slightly Agree" to "Agree," with two ratings of disagreement. Statement 27.2 (mean 1.467, standard deviation 1.060) reached 27 percent and 67 percent consensus, respectively, for ratings of "Slightly Agree" and "Agree," with one rating of "Disagree." Statements 27.1 and 27.2, which were revised statements from the initial survey, lacked the high levels of agreement, compared to Statement 27.

Documenting success. A detailed analysis of all three statements pertaining to the documenting success subcomponent revealed that Statement 28 (mean 0.800, standard deviation 1.014) reached 73 percent consensus, with a rating of "Slightly Agree"

and two ratings of disagreement. The specific statements pertaining to the documenting success subcomponent were reviewed and compared with the means, the standard deviations, and the confidence intervals, as presented in Table 4-15.

Table 4-15 Documenting Success Subcomponent Statements in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
28. Success should be measured by work-related education program, certificate, or degree completion rates.	0.800	1.014	0.269	1.331
29.1. Success should be measured by job retention rates, employment rates, and increased wages.	1.467	1.060	0.911	2.022
29.2. Success should be measured by each individual student's educational attainment/skill acquisition—including those who complete one class and those who do not complete a certificate or degree.	2.067	0.594	1.756	2.378

It was apparent that the panel of experts did not wholeheartedly endorse success measured by "completion rates" in the context of exit requirements, as compared to industry expectations for documenting college success. However, the panel of experts moved toward higher levels of agreement on Statement 29.2 (mean 2.067, standard deviation 0.594), which stipulated: "Success should be measured by each individual student's educational attainment/skill acquisition--including those who complete one class and those who do not complete a certificate or degree."

Instruction, programs, and delivery systems

The instruction, programs, and delivery systems component consisted of four statements pertaining to the focus of work-related education on learning skills and delivery of programs. The panel of experts generally endorsed this component subsection with ratings between "Agree" and "Strongly Agree" for the last three statements, as presented in Table 4-16.

Table 4-16 Instruction, Programming, and Delivery Systems Statements in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
33. Work-related education should focus on learning skills with broad application to several similar occupations.	2.000	0.535	1.720	2.280
33.1. Work-related education should reflect the needs of local businesses (not be limited to any specific level of skill development).	2.000	0.535	1.720	2.280
34. Work-related education should be on an equal footing with regular college programming.	2.600	0.507	2.334	2.866

The exception was a lower level of consensus at 67 percent and a rating of "Slightly Agree" for Statement 31. This statement pertained to an orientation to lifelong learning as a focus of work-related education (mean 1.067, standard deviation 0.884), as depicted in Table 4-16.

Staffing

The staffing component consisted of five statements pertaining to assessing work-related education in terms of staffing decisions, workplace experience levels, and student

placement services. The panel generally endorsed this component subsection with averages between “Agree” and “Strongly Agree” for the first two statements and between “Slightly Agree” and “Agree” for the remaining statements, as presented in Table 4-17.

Table 4-17 Staffing Statements in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
36. Colleges should establish a staffing pattern (hard-money & full-time positions) relationship to ensure work-related education programs receive their fair share.	2.506	2.267	0.458	2.027
37. Work-related education faculty and staff need real workplace experience to communicate effectively with students.	2.600	0.737	2.214	2.986
38. Work-related education advisory committees provide sufficient "real world of work" input to faculty and staff.	1.267	1.280	0.596	1.937
39. Student services and advising should be the same for work-related education students as it is for traditional credit students.	1.733	1.033	1.192	2.274
40. The student placement office should primarily focus on identifying career openings and pathways.	1.533	1.060	0.978	2.089

By exception, Statement 38 (mean 1.267, standard deviation 1.280), which pertained to the value of work-related education advisory committees, did not achieve high levels of agreement beyond the one-half of the participants who rated it at the “Agree” level.

Coordination and Planning

The coordination and planning component consisted of four statements which assessed whether or not the thinking and planning for work-related education was focused on where students would find work or find work by other criteria. This was one of the strongest components in terms of high levels of agreement. The panel of experts fully endorsed this component subsection with all averages upwards or nearly at "Strongly Agree" for all statements, as presented in Table 4-18.

Table 4-18 Coordination and Planning Statements in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
42. Programming and planning should take into account regional, national, and global trends.	2.933	0.258	2.798	3.069
43. Community colleges should cooperate with one another to accomplish regional and national work-related education planning collectively.	2.867	0.352	2.682	3.051
44. Community colleges should seek to build coalitions and partnerships with other colleges, organizations, and business to define roles and a vision for work-related education.	2.867	0.352	2.682	3.051
44.1 Each community college should be the primary coordinator between high schools, their college, and universities (circular linkages) to eliminate duplication and gaps in student learning.	2.600	1.056	2.047	3.153

Eighty percent of the participants rated Statement 44.1 “Strongly Agree” to community colleges assuming the role of primary coordinator for “circular linkages.” Only one participant rated the statement “Slightly Disagree.”

National Proclamation and National Database for Work-related Education

The final component consisted of two specific statements pertaining to the promotion of a wide-spread vision and supporting data to reflect the strengths and successes of work-related education at community colleges. The panel of experts responded to this component subsection with rating averages upwards of “Slightly Agree” to “Agree,” as presented in Table 4-19.

Table 4-19 National Proclamation and National Database Statements in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
45. A national proclamation should be created and promoted which defines the role of the community college in work-related education.	1.600	0.910	1.123	2.077
46. A national database reflecting community college potential and achievement should be created to assist in identifying limitations and areas of growth and improvement.	1.533	0.743	1.144	1.923

Research Question Pertaining to Strongest Advocated Principles and Components

The third research question was based on confirming those principles and components pertaining to work-related education which received the panel of experts’ highest support. The research question was framed as:

3. What were the most strongly advocated principles and components supporting work-related education?

Strongest Advocated Principles

With the sole exception of Principle VI, the other five principles of the learning college were supported by one or more statements rated upwards of "Strongly Agree."

A total of eight out of the 29 statements for the five principles garnered high levels of agreement, as presented in Table 4-20.

Table 4-20 Strongest Advocated Principles in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
Principle I				
2. Work-related education should "kindle" (stimulate) new ways of seeing, thinking, and doing--in dramatic "first" events and new discoveries.	2.667	0.617	2.343	2.990
Principle II				
4. Work-related education should communicate that students are full (and active) partners in the creation and implementation of their learning experiences.	2.800	0.414	2.583	3.017
5. Work-related education should communicate that students will assume primary responsibility for making their own choices about goals and options.	2.667	0.488	2.411	2.922
6.2. Work-related education orientation should offer many formats (flexible times, on-site/workplace, group, one-on-one, self-guided, mentoring, on-line, etc.).	2.533	0.915	2.054	3.013

Table 4-20 Continued

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
Principle III				
8. Work-related education should offer a full array of options to accommodate individual differences in learning styles, rates, aptitudes, and prior knowledge.	2.800	0.561	2.506	3.094
Principle IV				
12. Work-related education should focus on creating communities among all participants (students, faculty, and other learning specialists) to support individual learning.	2.667	0.617	2.343	2.990
14.2. Community colleges should assess the relevance of course instruction in the workplace.	2.667	0.488	2.411	2.922
Principle V				
16. Work-related education personnel should be hired based on what learners need.	2.667	0.724	2.288	3.046

By the completion of Round Three, patterns had emerged with respect to the most strongly advocated principles and components. Eighteen out of the 59 statements in Round Three were rated at averages at or above 2.5, with upper 95 percent confidence intervals in the 2.9 to 3.0 range of “Strongly Agree.”

Strongest Advocated Components

Ten out of the 30 statements pertaining to the components in Round Three were rated at averages at or above 2.5, with upper 95 percent confidence intervals in the 2.9 to 3.0 range of "Strongly Agree." By exception, there were two out of seven component subsections which did not have any statements rated at or above 2.5. These two component subsections were "Needs Assessment and Documenting College Success" and "National Proclamation and National Database for Work-related Education." The other five component subsections were supported by one or more statements rated upwards of "Strongly Agree." A total of 10 out of the 30 statements garnered high levels of agreement, as presented in Table 4-21.

Table 4-21 Strongest Advocated Components in Round Three

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
Mission and Organization				
22. The mission statement should clearly claim the role of work-related education equal to other mission tenants.	2.144	2.533	2.923	0.743
23. Work-related education should be, politically (centrally planned and funded), an important part of the organization.	2.733	0.704	2.365	3.102
Funding				
24. Community college funding mechanisms should acknowledge the centrality (deal effectively and fairly with all aspects) of work-related education.	2.667	0.617	2.343	2.990

Table 4-21 Continued

	Mean Scale Range -3 to +3	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
25. Funding formulas should be influenced to include the needs of the emerging workforce on state, regional, national, and global basis.	2.733	0.458	2.494	2.973
Instruction, Programs, and Delivery Systems				
34. Work-related education should be on an equal footing with regular college programming.	2.600	0.507	2.334	2.866
Staffing				
37. Work-related education faculty and staff need real workplace experience to communicate effectively with students.	2.600	0.737	2.214	2.986
43. Community colleges should cooperate with one another to accomplish regional and national work-related education planning collectively.	2.867	0.352	2.682	3.051
44. Community colleges should seek to build coalitions and partnerships with other colleges, organizations, and business to define roles and a vision for work-related education.	2.867	0.352	2.682	3.051
44.1 Each community college should be the primary coordinator between high schools, their college, and universities (circular linkages) to eliminate duplication and gaps in student learning.	2.600	1.056	2.047	3.153

Consensus Reached by the Panel of Experts

The first of the secondary research questions was based on determining the impact of the Delphi technique in confirming whether or not the panel of experts reached consensus on six principles and seven components to derive a common definition for work-related education. The research question was framed as:

1. Could a selected group of community college leaders reach consensus, using a Delphi technique, on what principles and components could be identified to derive a common definition for work-related education?

A review of the standard deviations in Table 4-5 for the 29 statements, which pertained to the principles of the learning college, revealed that the panel of experts reached consensus on 23 statements or 79 percent of these statements by posting less than one standard deviation. A review of the standard deviations in Table 4-5 for the 30 statements, which pertained to the components, revealed that the panel of experts reached consensus on 20 statements or 67 percent of these statements by posting less than one standard deviation. Forty-three out of the 59 statements or 73 percent of these statements, which posted less than one standard deviation indicated that the Delphi technique was effective in generating consensus.

Relationships between the Principles and Components

The last of the secondary research questions was based on investigating whether or not relationships could be confirmed between O'Banion's (1997) six principles of the learning college and the seven components identified in the literature and through the Delphi technique. The research question was framed as:

2. Could meaningful relationships be confirmed between the six principles and the identified components to derive a common definition of work-related education?

Correlation coefficients were used to analyze the relationships of the means between the principles of the learning college and the components identified as pertaining to work-related education. The correlations were organized into a matrix showing 42 correlations to facilitate inspection and comparison of each variable as shown in Table 4-22.

Table 4-22 Correlation Matrix of Principles and Components in Round Three

	C 1	C 2	C 3	C 4	C 5	C 6	C 7
P I	0.29	0.75*	0.72*	0.61*	0.21	0.77*	-0.04
P II	0.34	0.50*	0.36	0.43	0.25	0.62*	0.28
P III	0.62*	0.69*	0.27	0.68*	0.12	0.68*	0.32
P IV	0.41	0.67*	0.24	0.43	0.38	0.65*	-0.12
P V	0.27	0.69*	0.36	0.54*	0.52*	0.72*	-0.20
P VI	0.45	0.50*	0.72*	0.09	0.17	0.47	-0.10

* Correlation is significant at the 0.05 level, $p<0.05$

P I	=	Principle I	C 1	=	Mission and organization
P II	=	Principle II	C 2	=	Funding
P III	=	Principle III	C 3	=	Needs assessment and documenting college success
P IV	=	Principle IV	C 4	=	Instruction, programs, delivery systems
P V	=	Principle V	C 5	=	Staffing
P VI	=	Principle VI	C 6	=	Coordination and planning
			C 7	=	National proclamation and national database

Both positive and negative correlations were found. Significant correlations were all positive. Significant correlations were annotated in Table 4-22 by a single asterisk where the p-value was less than 0.05.

Relationship of Components to Principles

Principle I--***the learning college creates substantive change in individual learners*** (P I)--had positive significance between the components pertaining to funding (C 2), needs assessment and documenting college success (C 3), instruction, programs, and delivery systems (C 4), and coordination and planning (C 6), as shown in Table 4-23.

Principle II--***the learning college engages learners as full partners in the learning process with learners assuming primary responsibility for their own choices***

(P II)--had positive significance between the components pertaining to funding (C 2) and coordination and planning (C 6), as depicted in Table 4-23.

Principle III--***the learning college creates and offers as many options for learning as possible*** (P III)--had positive significance between the components pertaining to mission and organization (C 1), funding (C 2), instruction, programs, and delivery systems (C 4), and coordination and planning (C 6), as depicted in Table 4-23.

Principle IV--***the learning college assists learners to form and participate in collaborative learning activities*** (P IV)--had positive significance between the components pertaining to funding (C 2) and coordination and planning (C 6), as depicted in Table 4-23.

Principle V--***the learning college defines the roles of learning facilitators by the needs of the learners*** (P V)--had positive significance between the components pertaining to funding (C 2), instruction, programs, and delivery systems (C 4), staffing (C 5), and coordination and planning (C 6), as depicted in Table 4-23.

Table 4-23 Significance between Principles and Components in Round Three

		Components			
Principle I	=	C 2	C 3	C 4	C 6
Principle II	=	C 2	C 6	-	-
Principle III	=	C 1	C 2	C 4	C 6
Principle IV	=	C 2	C 6	-	-
Principle V	=	C 2	C 4	C 5	C 6
Principle VI	=	C 2	C 3	-	-

C 1 = Mission and organization
C 2 = Funding
C 3 = Needs assessment and documenting college success
C 4 = Instruction, programs, delivery systems
C 5 = Staffing
C 6 = Coordination and planning
C 7 = National proclamation and national database

Principle VI--***the learning college and its learning facilitators succeed only when improved and expanded learning can be documented for its learners*** (P VI)--had positive significance between the components pertaining to funding (C 2) plus needs assessment and documenting college success (C 3), as depicted in Table 4-23.

Summary

The Delphi technique was selected as the methodology for this research study for its potential to reach levels of agreement and consensus among a panel of experts within a field to derive a common definition for work-related education. This research study was built on the theoretical foundation of the principles of the learning college along with a practitioner's perspective of those components of work-related education as identified in the literature that pertained to community colleges.

The research sample consisted of 20 community college leaders who were currently the chief executive officers or other administrators at the colleges whose CEOs comprise the League' Board of Directors. The three rounds of the survey instrument were web-based and administered via the Internet.

To verify the accuracy of using the Delphi technique for this research study, the results of the three-round process were shown in a comparative depiction. The response ratings were presented in a round-by-round evaluation of the data with the appropriate descriptive statistics. T-tests were used to confirm the absence of statistical significant differences between CEO scores and other administrator scores. The Duncan's test was used and it found that statistical differences were evident between average total scores in the first and third rounds, which indicated that the panel of experts had fully developed the Delphi process for this study. This Duncan's test supported a level of confidence, which, when combined with the research procedures and the study attributes, promoted

reaching a superior group view of the task at hand through the phenomenon “collective intelligence” (Turoff & Hiltz, 1996, p. 80).

A statistical investigation of the relationships between the principles of the learning college and the identified components of work-related education confirmed that significant relationships existed between the six principles and the seven components. This examination found that:

- Principle I related significantly to mission and organization, funding, instruction, programs, and delivery systems, and coordination and planning.
- Principle II related significantly to funding and coordination and planning.
- Principle III related significantly to mission and organization, funding, instruction, programs, and delivery systems, and coordination and planning.
- Principle IV related significantly to funding and coordination and planning.
- Principle V related significantly to funding, instruction, programs, and delivery systems, staffing, and coordination and planning.
- Principle VI related significantly to funding and needs assessment and documenting college success.

Six of the seven components under study were found to relate significantly to one or more of the principles of the learning college.

Chapter 5 presents conclusions based on the results from the data that were compiled and the relationships which were identified to expand the existing body of knowledge pertaining to work-related education. A prototype model of a common definition for work-related education is outlined, the commonality of certain components is identified, recommendations for further research are offered, and implications for community college leaders and policymakers are presented.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

Introduction

Work-related education continues to evolve as a key aspect of the community college mission. Bragg (2001) found that present-day community colleges "have a major responsibility for preparing the nation's current and future midskilled workforce" comprising three-quarters of employees in the United States (p. 5). A central part of this research was to complement and add to the body of knowledge pertaining to work-related education at community colleges.

The conceptual framework that guided this study was twofold. First, from the theoretical and practical perspectives, the primary purpose of this study was to test if work-related education conformed to O'Banion's (1997) six principles of the learning college and, furthermore to determine whether or not the principles could be supplemented by examining additional complementary components of work-related education. Second, the research was conducted with a Delphi technique to determine whether or not the community college leaders who participated in this study as the panel of experts could reach agreement on the identified principles and components. The point was to further the knowledge of these relationships, which in total could be modeled to derive a common definition for work-related education at community colleges. Specifically, this study addressed the following primary and secondary research questions:

Primary Questions

1. Which, if not all, of O'Banion's six principles of "the learning college" could be associated with work-related education?

2. What other components could be identified for the work-related education function at community colleges?

3. What were the most strongly advocated principles and components supporting work-related education?

Secondary Questions

Additional secondary questions were identified that could be answered as a result of this study. These questions were addressed through a compilation of the answers to the primary research questions.

1. 1. Could a selected group of community college leaders reach consensus, using a Delphi technique, on what principles and components could be identified to derive a common definition for work-related education?

2. 2. Could meaningful relationships be confirmed between the six principles and the identified components to derive a common definition of work-related education?

The research questions were first addressed through an extensive search of relevant literature on work-related education. The literature review examined classical and current literature in the field of vocational and occupational education as it pertained to postsecondary education, specifically community colleges. The literature review brought forth the consistent message that community colleges "demonstrated flexibility in adapting to social and economic challenges facing communities, states, regions, and the nation" (Campbell, Leverty, & Sayles, 1996, p. 172). However, the findings of this study indicated that the conceptual ambiguity, which has historically surrounded work-related education, has endured. Community colleges have experienced an evolutionary mix of educational innovation, which contributed to a lack of consistency in defining work-related education at their institutions. Varying terminology and a lack of a wide-spread

definition for work-related education have impacted the consistency and centrality of the function. These variations on the work-related education theme for the nation's community colleges have been peculiar to each state based on a state's individual needs, including how policy was made and how funding was allocated. Campbell et al. (1996) found that "state funding for higher education reflects each state's preference for higher education among other services" (p. 174). Brand (1998) described the process of change for work-related education in the United States as "complex, difficult, slow," which, on a national basis, has been impeded by the "decentralized nature" of work-related education in the 50 states (p. 153). Beyond the observations and deficiencies which surfaced from the review, the literature confirmed a gap in the current knowledge. This did not specifically reveal pointed evidence or demonstrate successful efforts to pursue and achieve a common definition for work-related education. This study was initiated to add to the body of knowledge, which reflected a gap in current research and practice, and also to establish a foundation and catalyst to model principles and components to derive a common definition for work-related education.

The Delphi technique provided the methodology by which the panel members could communicate their opinions, beliefs, and agreement about work-related education. The participants' responses pertained to the principles of the learning college and the components identified with work-related education. The responses were used to support a detailed examination and discussion with certain quantification of the participants' viewpoints. The survey method and methodology lent itself to essentially "built-in" content validity by virtue of the participants' development of the content of the scale matching the content domain. The panel of experts' responses and inputs over the

iterative three rounds of the Delphi technique further ensured that the results could be used for well-founded conclusions and relationships. The following observations were made at the conclusion of this study:

- The aggregate response rates, based on the number of participants, met the general guidelines for using the Delphi technique in educational studies.
- The study concluded with answers to all research questions in a supportive fashion.
- It was apparent that the panel of experts generally agreed that five of the six principles of the learning college should apply to work-related education.
- It was apparent that the panel of experts generally agreed that six of the seven components identified should apply to work-related education.
- A statistical investigation revealed significance between the principles and several of the components identified in the study.
- The professionalism and commitment by the panel of community college CEOs and senior administrators were noteworthy by their contributions to the success of this research study.

Model of Work-related Education

The review of both the quantitative and qualitative data, which were collected during the three rounds of the Delphi study, revealed that the panel of experts generated levels of agreement and consensus on specific principles of the learning college and other components. These principles and components could be assimilated into a model to derive a common definition for work-related education. The implications of this study suggest that current-day community college leaders could use a participatory model, such as presented in this study, to pursue an increased presence and improved levels of support for community colleges in the United States. This model addresses the six principles of the learning college and attempts to capture relationships between each principle and identified components of work-related education. However, understanding all the elements and relationships between each other to derive a common definition for work-

related education may be more than can be expected at this juncture. This model is an effort to establish a consolidated position on and a holistic approach to what constitutes work-related education. Obtaining feedback on the prototype model drawn from this research could provide a starting point for more questions, further research, and an appropriate dialogue about the endorsement of a common definition for work-related education nationwide.

Principle I: ***The learning college creates substantive change in individual learners*****.** This principle was supported by significance with four out of the seven components identified with work-related education:

- Funding
- Needs assessment and documenting college success
- Instruction, programs, and delivery systems
- Coordination and planning

Such an inclusive relationship could be explained based on the comprehensive nature for this first principle of the learning college. According to O'Banion (1997), Principle I of the learning college is the "embedded value undergirding all other principles" (p. 48). This principle symbolizes "formal schooling" to learners, and as such may also focus on those indirect processes which support "formal schooling."

Principle I demonstrated significance with funding (C 2) which recognized how the viability of the learning college could be dependent on the ability of community colleges to influence funding priorities based on negotiating with those who control funding. Modification of funding strategies, in support of work-related education, was found to be "ultimately more likely to be a state or national effort" (Hamm & Mundhenk, 1995, p. 5). Community colleges, however, still need to assess their work-related education efforts in the context of funding priorities that support an environment of "substantive change" for

work-related education learners. In addition, there was 100 percent agreement (Statement 26, mean 2.000, standard deviation 0.000) that funding formulas should be influenced to support innovative, instructional improvements for work-related education, as illustrated in Table 4-13. Considering that work-related education does not always integrate well into credit-based funding formulas, there was also general agreement (93 percent) that community colleges may need to seek different funding avenues. These sources could include partnering with the private sector and non-profits (Statement 26.2) to satisfy learning college funding needs for work-related education. However, the ability of community colleges to establish new services and innovative practices would require dedicated efforts to influence the priorities of those who control the funds and funding formulas. Cohen and Brawer (2003) noted that "funds are often secured through priorities established by state and federal agencies" (p. 233). Again, Campbell et al. (1996) found that "state funding for higher education reflects each state's preference for higher education among other services" (p. 174). Brand (1998) described the process of change for work-related education in the United States as "complex, difficult, slow."

Needs assessment and documenting college success (C 3) revealed significance as to what learners fundamentally (and work-related education stakeholders) need and how community colleges document learner success including degrees and certificates. Documenting college success should also include other exit point "achievements" for learners --those who did not--and never intended to--graduate, yet still experience "substantive change" at community colleges. Cohen and Brawer (2003) found that students who "enter vocational programs only to get additional skills must be factored in, just as students who obtain job certifications but find no jobs available" (p. 235).

Additionally, they found that because work-related education "has several purposes, the measures of success that can be applied to it vary," and that "indirectly, legislation and funding depend on which purpose is being reviewed" in determining the value added (p. 239).

Instruction, programs, and delivery systems (C 4) demonstrated significance, which recognizes that in order to create substantive change, the standard methods of delivering work-related education may not address the developing needs of learners. O'Banion described these needs as "developmental tasks" and how learning "kindles new ways of seeing, thinking, and doing--in dramatic events and incrementally in day-to-day experiences" (p. 48). In addition, this component focused on participants responding with strong agreement that work-related education should be on an equal footing with regular college programming. The participants also responded that the most effective instructional approaches are those which focus on learning skills with broad application to several similar occupations while ensuring that the needs of business are satisfied, as presented in Table 4-16. Merisotis and Wolanin (2000) noted that "the key question for community colleges is how to strike a balance between direct worker training efforts and general education programs" (para. 2). Cohen and Brawer (2003) noted that "there can be no reversing the perception that one of the college's primary functions is to train workers" (p. 420).

The significance on the coordination and planning component (C 6) assesses the community colleges' sensitivity to satisfying the needs of people, both learners and stakeholders. There was strong agreement across all component aspects (Statements 42 - 44.1), as shown in Table 4-18. This supported the thinking that community colleges

should be the primary coordinators of work-related education between high schools, the college, and universities (circular linkages) to eliminate gaps in student learning. In addition, there was strong agreement that community colleges should focus on where learners will find work. They agreed that community colleges should seek to build coalitions and partnership with other colleges, organizations, and business to define roles, establish a vision, and meet planning objectives for work-related education. Hamm and Mundhenk (1995) emphasized the concerns of whether or not the thinking and planning of the college was "primarily local or regional," and they emphasized the potential for regional and national recognition of work-related education through data support (p. 9). Finlay, Niven, and Young (1998) noted the international trend of other nations' work-related education systems in providing "a response to changes in the global economy" and the adoption of long-term strategies with respect to these changes (p. 3).

Again, based on such a relationship with significance found in four out of seven components, it was appropriate how O'Banion described this Principle I of the learning college: "This first principle must form the framework for all other activities" (p. 49).

Principle II--***the learning college engages learners as full partners in the learning process with learners assuming primary responsibility for their own choices.*** This principle was supported by significance with two out of the seven components identified with work-related education:

- Funding
- Coordination and planning

Principle II demonstrated significance between the components pertaining to funding (C 2) and coordination and planning (C 6), as depicted in Table 4-23. Such a relationship could be explained based on the concentration on "services" that must be

initiated: "at the point a learner chooses to engage the learning college" (O'Banion, 1997, p. 49). This principle addresses services which O'Banion described as full assessment of "the learner's abilities, achievements, values, needs, goals, expectations, resources, and environmental/situational limitations" (pp. 49-50). In addition, this principle puts the responsibility on community colleges to provide orientation or rather "the process of engagement" in the new learning environment, based on a variety of formats in such a way that the process meets the needs of each individual learner (pp. 50-51).

Funding (C 2) also showed significance with Principle II. It recognized how the viability of the learning college could be dependent on funding the services that should be taken into consideration and the requirement to fund "specialists" as an "innovation" and improvement for work-related education (Statement 26, mean 2.000, standard deviation 0.000). These specialists were identified by O'Banion to "monitor the services, provide new technology training, develop learning collaborations, locate learning resources, and navigate the learning system" and thus "approve a learner's readiness to fully engage the learning opportunities provided" (p. 50). This would support the "centrality of work-related education" (Statement 24, mean 2.667, standard deviation 0.617), as displayed in Table 4-13.

Again, as found with Principle I, there was significance on the coordination and planning component (C 6), which assesses community colleges' sensitivity to satisfying the needs of the learners. There was strong agreement across all component aspects (Statements 42 - 44.1), as shown in Table 4-18. This supported the thinking that community colleges should be the primary coordinators of work-related education

between high schools, the college, and universities (circular linkages) to eliminate gaps in student learning. In addition, there was strong agreement that community colleges should focus on where learners will find work. They agreed that community colleges should seek to build coalitions and partnership with other colleges, organizations, and business to define roles, establish a vision, and meet planning objectives for work-related education.

Principle III--*the learning college creates and offers as many options for learning as possible.* This principle was supported by significance with four out of the seven components identified with work-related education:

- Mission and organization
- Funding
- Instruction, programs, and delivery systems
- Coordination and planning

Principle III demonstrated significance with the components pertaining to mission and organization (C 1), funding (C 2), instruction, programs, and delivery systems (C 4), and coordination and planning (C 6), as depicted in Table 4-23. Such a relationship could be explained based on community college programs which, according to O'Banion (1997), offered many options for learning "regarding time, place, structure, and methods of delivery" (p. 52). The college programs could incorporate the latest in technique, technology, and training materials. O'Banion stated that "to manage the activities and progress of thousands of learners engaged in hundreds of learning options at many different times, at many different levels," expert systems were needed. An example based on such developments was the Miami-Dade College's Synergy Integrator, which was implemented to "manage" the educational enterprise (p. 54).

The significance on mission and organization (C 1) recognized the emphasis that participants placed on claiming the role of work-related education equal to other mission tenants (Statement 22, mean 2.533, standard deviation 0.743). The value of centrally planning and funding work-related education was also identified as an important part of the organization (Statement 22.1, mean 2.733, standard deviation 0.704). In addition, participants supported an integrated model for work-related education with general and transfer education (Statement 22.1, mean 2.133, standard deviation 0.352). Gleazer (1968) and Cohen and Brawer (2003) found that when work-related education was acknowledged as a primary function, it required a commitment by a community college that affected every aspect of its operations and could lead to shifts in the pattern of support.

Funding (C 2) demonstrated significance, which recognized how the viability of the learning college could be dependent on "funding formulas which should be influenced to include the needs of how instructional innovation improves work-related education" (Statement 26, mean 2.000, standard deviation 0.000). Funding also demonstrated that "community college funding mechanisms should acknowledge the centrality of work-related education" (Statement 24, mean 2.667, standard deviation 0.617), as displayed in Table 4-13. Another component with significance was instruction, programs, and delivery systems (C 4). This component recognized that "the standard methods of delivering" work-related education may not include "as many options as possible," and that community colleges would need to create and offer options that were seamless, trackless, and classless so work-related education would not be "operated in isolation"

and prevent learners "from making reasonable changes in their programs" (Hamm & Mundhenk, 1995, p. 13).

O'Banion (1997) described programs which should accommodate "differences in learning styles, learning rates, aptitudes, and prior knowledge while maintaining educational quality" (p. 52). In addition, this component focused on participants responding with strong agreement that work-related education should be an equal footing with regular college programming. This component also found that the most effective instructional approaches are those which focus on learning skills with broad application to several similar occupations while ensuring that the needs of business are satisfied, as presented in Table 4-16. As found with Principles I and II, there was significance with Principle III to the coordination and planning component (C 6), which assesses the community colleges' sensitivity to satisfying the needs of the learners and others. There was strong agreement across all component aspects (Statements 42 to 44.1), as shown in Table 4-18. This supported the thinking that "community colleges should seek to build coalitions and partnerships . . . to define roles and a vision for work-related education" (Statement 44, mean 2.867, standard deviation 0.352), based on the expectations of the learning college which should create and offer as many options as possible.

Principle IV--***the learning college assists learners to form and participate in collaborative learning activities.*** This principle was supported by significance with two out of the seven components identified with work-related education:

- Funding
- Coordination and planning

Principle IV demonstrated significance with the components pertaining to funding (C 2) and coordination and planning (C 6), as depicted in Table 4-23. Such a relationship

could be explained based on community college programs, which, according to O'Banion (1997), required transformation of the traditional institution or "community of scholars" into a "community of learners." The focus on creating learning communities would innovatively and purposefully restructure the curriculum to link together courses. Learners would then "find greater coherence in what they are learning as well as increased intellectual interaction with faculty and fellow students" (O'Banion, p. 56).

The significance on funding (C 2) recognized how the viability of the learning college could be dependent on "funding formulas which should be influenced to include the needs of how instructional innovation improves work-related education" (Statement 26, mean 2.000, standard deviation 0.000). This would include transformation to learning communities and collaborative learning activities, and that "community college funding mechanisms should acknowledge the centrality of work-related education" (Statement 24, mean 2.667, standard deviation 0.617), as displayed in Table 4-13.

As found with all the other principles, there was significance with Principle IV to the coordination and planning component (C 6), which assesses the community colleges' sensitivity to satisfying the needs of the learners and others. There was strong agreement across all component aspects (Statements 42 to 44.1), as shown in Table 4-18. In particular, there was strong agreement that "community colleges should seek to build coalitions and partnerships . . . to define roles and a vision for work-related education" (Statement 44, mean 2.867, standard deviation 0.352). This would include the transformation to a learning college as a visionary direction for work-related education.

Principle V--***the learning college defines the roles of learning facilitators by the needs of the learners.*** This principle was supported by significance with four out of the seven components identified with work-related education:

- Funding
- Coordination and planning
- Instruction, programs, and delivery systems
- Staffing

Principle V also demonstrated significance with the components pertaining to funding (C 2), instruction, programs, and delivery systems (C 4), staffing (C 5) and coordination and planning (C 6), as depicted in Table 4-23. Such a relationship could be explained based on O'Banion's (1997) description that "everyone employed in the learning college will be a learning facilitator." This description suggests the comprehensive nature of this principle.

The significance of this principle with funding (C 2) recognized how the viability of the learning college could be dependent on funding contracts with many "learning specialists" and educators of the future labeled "learning consultants." This principle could be supported by funding formulas that could be influenced by such "innovation" and improvement for work-related education (Statement 26, mean 2.000, standard deviation 0.000). These learning specialists were identified by O'Banion (1997) to produce specific products or deliver specific services. These services ranged from needs assessment to learning options creation, and from creating the collaborative networks to establishing learning in the workplace (p. 59).

The significance on instruction, programs, and delivery systems (C 4) recognized that work-related education should be assessed in terms of instructional approaches, college programming, and improvement processes. O'Banion (1997) put the ownership

on “everyone employed in the learning college.” He took a clearly innovative approach to new roles because learning facilitators would best describe the educator of the future as mentors, “facilitators of inquiry,” “architects of connection,” “managers of collaboration and integration,” as well as learners themselves participating as lab assistants or tutors to assist other learners (pp. 59-60).

Finally, the significance on the staffing component with Principle V was a natural relationship, considering the explicit focus on staff and faculty roles in this principle. The panel of experts expressed general agreement and endorsed this component subsection with all averages between “Slightly Agree” and “Strongly Agree,” as presented in Table 4-17. That work-related education faculty and staff need real workplace experience to communicate effectively with students was the statement of strongest agreement (mean 2.600, standard deviation 0.737). The participants recognized the value and multi-role aspects of employing “specialists” and “learning consultants,” as designated in Principle V. Cohen and Brawer (2003) posed that program success could be subject to how community colleges appoint the program coordinators, and how these colleges compose those advisory committees responsible for work-related education programs (p. 233).

There was significance on the coordination and planning component (C 6), which assesses the community colleges’ sensitivity to satisfying the needs of people--both learners and stakeholders. There was strong agreement across all component aspects (Statements 42 - 44.1), as shown in Table 4-18. The all-embracing goal of this principle could be supported by community colleges seeking to build coalitions and partnerships with other colleges, organizations, and business to define roles and a vision for work-

related education (Statement 44, mean 2.867, standard deviation 0.352). Again, based on such a relationship with high significance found in four out of the seven components, it was appropriate how O'Banion (1997) describe Principle V of the learning college: "The goal is to have every employed person thinking about how his or her work facilitates the learning process" (p. 58).

Principle VI--***the learning college and its learning facilitators succeed only when improved and expanded learning can be documented for its learners.*** This principle was supported by significant correlations with two out of the seven components identified with work-related education:

- Funding
- Needs assessment and documenting college success

Principle VI demonstrated significance with the components pertaining to funding (C 2) and needs assessment and documenting college success (C 3), as depicted in Table 4-23. Such a relationship in support of work-related education could be based on O'Banion's (1997) goal of documenting "what learners know and what they can do and to use this information as a primary measure of success for the learning facilitators and the learning college" (p. 60).

This principle could be supported by funding formulas that could be influenced by such "innovation" and improvement for work-related education (Statement 26, mean 2.000, standard deviation 0.000). The significance on funding (C 2) recognized how the viability of the learning college could be dependent on whether or not "funding formulas should be influenced to include the needs of the emerging workforce on state, regional, national, and global basis" (Statement 25, mean 2.733, standard deviation 0.458), as displayed in Table 4-13.

The significance on the needs assessment and documenting college success component presented a natural relationship, if not explicit focus, on documenting success. Statement 29.2 (mean 2.071, standard deviation 0.616) said that "success should be measured by each individual student's educational attainment/skill acquisition--including those who complete one class and those who do not complete a certificate or degree," which integrates well with O'Banion's (1997) viewpoint that "learners will be encouraged to add competencies and goals beyond those established in the standards" (p. 60). Again, based on the relationships with significance found with these two components, it was appropriate how O'Banion described Principle VI of the learning college as: "well-designed to support the goals and structures of the learning college" (p. 61).

Commonality of Components across Principles

The commonality of certain components was conveyed through the analysis of the data (Table 4-13 and Table 4-18) and then linked to the conclusions presented in the previous section, which detailed the prototype model of work-related education drawn from the research. Specifically, the funding component and the coordination and planning component were found to have significance across the majority of principles (Table 4-23).

Funding was shown to be statistically significant at the 0.05 level across all principles. The participants fully endorsed the funding component with means at or above "Agree" to "Strongly Agree" and with standard deviations ranging from zero standard deviation to 0.617. These high levels of agreement and consensus recognized the commonality of the funding component across all principles indicating that funding is a critical issue to developing a common definition for work-related education.

Recognizing the impact of the funding issue at community colleges, Cohen and Brawer (2003) forecasted that the "form of the community college will not change . . . all current services will continue to be provided, with growth or shifting emphases depending on funding and different population bases" (pp. 404-405). Hamm and Mundhenk (1995) stated that community colleges "need to assess the viability of their workforce development efforts in the context of funding priorities . . . may want to consider proposing different approaches to funding, though they should do so in a coordinated, regional way" (p. 6). Honeyman and Bruhn (1996) noted that "outcome measurements assumed a new importance with the growing public demand for accountability" in the 1990s (p. 27). Cohen and Brawer (2003) forecasted that work-related education will remain prominent while still recognizing that "more than in any other area, the specter of institutional accountability looms over the occupational programs" (p. 420). Proposing different approaches to funding indicates that new, non-traditional outcome measurements on a regional and national basis could carry forward a compelling case to policymakers and the general public for developing a common definition for work-related education. An issue with proposing different approaches to funding rests with "challenge of defining priorities among a potentially infinite set of individual training and educational agendas (Palmer, 1996, p. 194). Such a challenge could be effectively answered by a model and common definition for work-related education that is widely understood and universally accepted as an institutional purpose of community colleges.

Coordination and planning was shown to be statistically significant at the 0.05 level across five of six principles (Table 4-22) and was correlated to a value of 0.47 with Principle VI which was statistically significant with increased tolerance at the 0.10 level.

The participants fully endorsed the coordination and planning component with means upwards or nearly at “Strongly Agree” and with standard deviations ranging from 0.258 - 1.056 standard deviation. These high levels of agreement and consensus recognized the commonality of the coordination and planning component across all principles indicating that coordination and planning are also critical issues to developing a common definition for work-related education. Cohen and Brawer (2003) forecasted that “the trend toward greater state-level coordination will continue at a slow pace” (p. 413). Ashworth (1972) stated that “public appreciation for general as well as specialized education is also necessary” and that the general public can not be neglected nor ignored by institutions of higher education:

> Another area worthy of study is how the higher education community can gain increasing support from society. If government ultimately is directed and controlled by the people, their understanding of the needs and prerequisites of higher education would be the best protection against government interference . . . . continued public support constitutes a safeguard and a resource which our colleges and universities dare not permit to wane. (p. 137)

Hamm and Mundhenk (1995) stated that in most cases, work-related education “issues and demands tend to stretch beyond sponsorship borders.” They advocated that work-related education “must take into account regional and national trends” which acknowledged that learners may find work beyond their respective community college districts to other parts of the nation or even globally. They also advocated that community colleges must “be involved in making both regional and national cases for their role” to initiate and accomplish regional and national planning collectively for work-related education (p. 9). Hamm and Mundhenk (1995) also beget the political overtones of this component in that “colleges are expected to be sensitive to satisfying the demands of the district and their governing boards (p. 9). Vaughn (1994) stated that, to

be effective, community college leaders must focus on establishing political leadership and that "the president ensures that the college's mission moves in concert with the goals of the community, the state, and when appropriate, the nation (p. 73). Eaton (1994) noted that "community college presidents have a great responsibility in influencing public policy . . . . Presidents need to take risks in planning for the future in the areas of public policy and college governance" (p. 136).

Community colleges cooperating with one another as well as building coalitions and partnerships with business/industry, policymakers, and the general public could set in motion a model and common definition for work-related education that is widely understood and universally accepted.

Suggestions for Further Research

This study did not surface previous research findings where the specific issue of pursuing a common definition for work-related education was addressed. The literature showed consistent evidence that the nation has in the past century turned to community colleges for solutions to its workforce problems and shortfalls. Several community college leaders and higher education researchers have echoed the dilemma and pitfalls of not having a common definition for work-related education. They indicate a lack of clarity and consistency in policymaking, particularly funding decisions, at the federal, state, and local levels. This researcher did not find any dedicated studies which addressed this specific issue, and also did not find the potential in pursuing a common definition model for work-related education at community colleges. The results of this study suggest several areas for further research to facilitate a consolidated position on and a common definition for work-related education at community colleges. These areas include:

- Carry forward the Round Three survey instrument with a larger sample by approximating five times the number of participants/respondents as there are statements, for example, 60 statements and 300 participants, for greater statistical power.

- Replicate this study with additional stakeholders in areas that are both internal and external to the community college setting, including internal constituents, such as other administrative and managerial staff, that is, vice presidents, deans and directors. Also, use external stakeholders, such as community members and businesses, university partners, and work-related education student groups.

- Replicate this study with state and federal government agencies responsible for work-related education administration, policymaking, and funding.

- Replicate this study with other community college associations or organizations on a national level, including affiliate councils of the American Association of Community Colleges, such as the National Council for Workforce Education, to further the body of knowledge from a broader geographical perspective.

- Examine the principles and components with a future perspective to facilitate the priority, focus, and applicability of new work-related education programs in the next decade.

Implications for Community College Leadership

Community college leaders can better meet expectations and further the community college role as Hamm and Mundhenk (1995) described the community college--"preparer of the nation's workforce"--by investing in further research, such as is presented in this study and offered in the prototype model. The conclusions of this study may help to more effectively present what is salient to all or most of work-related education including principles of the learning college" and components identified through the Delphi technique--in particular the commonality of components pertaining to funding and coordination and planning. While it is not asserted in the model that every principle was equally critical to work-related education, community college leaders could derive--through a thoughtful self-analysis of and consolidated response to each principle and the related components--a common definition of work-related education within a national

context. Community college leaders should give due diligence to the value in pursuing a common definition for work-related education and a consolidated front for community colleges to uphold their role as "preparer of the nation's workforce."

Implications for Policymakers

The conclusions of this study affirm that a common definition for work-related education is feasible by identifying, ranking, and modeling the principles and components specific to work-related education. The implications for policymakers are to recognize the impact such a common definition would have if implemented nationwide. The history of work-related education at community colleges in the United States has shown that discourse in how work-related education policy is made and how funding is distributed has a fragmented impact on how the work-related education is conducted.

Policymakers can ultimately improve overall support of work-related education at community colleges through a favorable reception of a common definition for work-related education and support of a model which addresses the commonality of components as conveyed in this study. The implications for policymakers are that such areas of commonality indicate trends for change for how policy is developed pertaining to funding issues as well as overall coordination and planning. Policymakers should consider these two areas of commonality as touch points to justify funding to community colleges and for pursuing a common definition for work-related education which is based on coordination and planning at their specific legislative levels.

In addition, "demonstrated flexibility in adapting to social and economic challenges" by community colleges was a consistent message in the literature. For these most obvious reasons, this "demonstrated flexibility" was construed as an asset. However, such "flexibility" can also be a detriment if it is used by policymakers as an

agent for change based solely on the politics of the day or upon changes in party dominance. The ramifications of inconsistent policy pertaining to funding as well as coordination and planning would distract, degrade, and fragment any direction towards a nationwide understanding and the value of a common definition for work-related education

The overall implication for policymakers is that, as long as work-related education can be subject to changes in terminology, definition, funding methodology, and planning and coordination efforts, community colleges will be restricted from fulfilling their potential as the "preparers of the nation's workforce." By supporting a common definition for work-related education, policymakers will have satisfied their obligation of service to students – learners, community colleges, and taxpayers alike in a fair and consistent manner across the nation.

APPENDIX
QUALITATIVE RESPONSES FOR ALL THREE ROUNDS

The qualitative responses were collected through use of open-ended comment boxes on the web-based survey tool. The qualitative responses data were simultaneously downloaded into a pop-up window along with the survey statement data and saved as a text file. The qualitative data in the text file were exported from Microsoft Excel to Microsoft Word for aggregation and analysis. Additionally in Round One, one participant electronically mailed expanded reflections regarding the principles, components, and perceptions. These comments were included in the qualitative data results.

Open-ended comments and opinions were interpreted as subjective information, which had characteristics relevant to the research questions. This subjective information was developed and aggregated as revised and additional survey items for new statements in the subsequent rounds.

Round One Qualitative Data Provided by Participants

List your reactions, initial thoughts, comments, and/or any recommended changes to any statement(s) pertaining to Principle I:

- I believe that since work-related education is so central to the immediate desire of students to achieve and grow that there are even more "aha" moments than in required general education. The fact that learning is in "context" makes it more meaningful for the student.
- Any kind of learning should accomplish new ways of seeing, thinking, and doing. Isn't that what learning is all about?

- The wording in item 2 and 3 and the reversing of the scale may incorrectly send the message that they are mutually exclusive or antithetic when, in truth, they can both occur. Studies of how learning takes place clearly document that learning can both be "all or none" and "successive approximation."

- Most work-related education requires substantial "hands on" learning. Actual experience is an important part of a healthy learning environment. Students are also more likely to work in teams and interact with mentors and each other in work related settings.

- At our institution--learning is learning is learning and we work hard to treat all learning and all learners as priority.

- Work-related or real world experience is vital to success.

- Significant positive outcomes should be the goal of work-related education. Substantive change may include increased creativity, improved critical thinking and enhanced academic and technical skills.

- One should be looking for long term growth potential not just quick hit skill sets or material learned by rote.

- Experience is always an asset and helps to link theory to practice.

- 1 & 2. “Substantive change” and “dramatic first events and new discoveries” are learner specific and should not be the same for each student. For some learners, [I] strongly agree that in a good course this will happen and for others I would disagree that this should be an expected outcome depending on where they are in life and personal experiences.

- It is in work-related education that the highest level of learning occurs. It is in "doing" that all the pieces of information often come together. Work-related education also provides a solid method of evaluation to ensure there is understanding of the content.

- Shouldn't all education accomplish these activities too? Whether the content/course is “work-related” shouldn't change these core student growth goals.

If Agree or Strongly Agree that students should participate in a structured

induction/orientation process, what format and time frame should be offered?

- Flexible time frames to meet the needs of working students. Format should be participative, using the life experiences of students.

- depends on purpose and content.

- Most work related programs require an initial orientation and safety training before a student can begin to work in a lab or clinical setting.
- Is there evidence that orientation makes a difference?
- In either of two forms, a pre-program orientation or a concurrent orientation with courses. Mentors should be a part of the experience.
- Early in the semester or quarter with continued support available.
- I think it depends on the nature, format and extent of the work-related education.
- As soon and as possible and we have found on-line is good.
- This needs to be very flexible. On-line could work and it may require an instructor.
- Face-to-face or online as an introduction (immediately prior to the learning experience).
- Participatory format over a couple different time frames so student can digest info and then discuss later.
- Optional workshop after work hours on work site.
- Three hours.
- “Require students” Strongly agree that some need an induction or orientation while others do not--or if they do it would be of a different type therefore disagree. All dependent on assessment, prior knowledge/skills/ability, and educational goal.
- Paper orientation as well as an on-site orientation.
- Variable requirement based upon the depth/content/format of the program.

List your reactions, initial thoughts, comments, and/or any recommended changes to any statement(s) pertaining to Principle II:

- The nature of the current job market requires that workers mange their career development. This process should start with and be embedded in the teaching and learning process. Proactive decision-making about careers should begin in the career preparation phase.
- I have questions about whether "full" partner is the right choice of word. Perhaps "active" partner?

- Given that most community college administrators, faculty and students are most familiar with the role relationships played by each under the "pedagogical model of learning," there must be a thoughtful and thorough set of guidelines promulgated as a "Learning Contract" when following an “andragogical model of learning."

- Work-related education programs typically engage students in work settings or laboratories that simulate work settings. This allows the student to experience first-hand the work environment and to make good choices about their learning.

- Mandatory induction and negotiated contracts may restrict student choice and interest. Students should have personal learning plans, but education is not a labor union.

- The answers to the questions above really depend on who the client/sponsor is for the work-related learning. If it is an individual learner, then certainly he/she should be an active partner throughout the process. If, on the other hand, the client/sponsor is the employer, then there are two levels of "partner engagement" and they are quite different from the former. If the employer is sponsoring the acquisition of mission critical skills and competencies, industry certification, etc., then our first obligation as a learning solutions provider is to meet the employer's requirements, and then in that context, engage the individual employees/learners as partners in the learning process to meet the client/sponsor's objectives and requirements. Hopefully, the objectives are not mutually exclusive between the client/employer and the employees/learners so as to create a conflict and thus result in an unsatisfactory situation for all concerned.

- Students need to be engaged in the learning process.

- A provision that the contract may be modified so that students may make reasonable changes is helpful.

- Student must be a partner in the design and the activity of the learning experience, but [it] must be recognized that the process needs to provide for the faculty to impart their expertise in a positive manner. Knowledge base of each--student and faculty can't be compromised.

- Students need a connection to the work related education and a learning plan would assist in this effort.

- Sometimes in work-related education, the objectives are the same for all students. While interests and needs can be addressed, all students typically have similar course goals, objectives, and competencies.

- Similar to my prior statement, these recommendations should apply to almost all learning activities.

If Agree or Strongly Agree, what options should be offered, e.g. portable modules, learning communities, stand-alone expert systems that respond to learner idiosyncrasies, others already established, or others yet to be designed?

- I believe that assessment of prior learning, credit through competency demonstration and other methods of assessing skills should be an integral part of the learning and credentialing process. Distance learning, hybrid (classroom and on-line) courses and other instruction designed so that students can learn at their own pace is critical.
- All of the above.
- In addition to those cited above, there should also be an option where the faculty member provides the individual learner with recommendations for sources and resources based on the learner's desired goals.
- Open entry/open exit labs help to accommodate individual differences in prior knowledge and rates of learning. Most community college faculty are aware of differences in learning styles and can accommodate individual student needs.
- Options that are best practices and have tested models and research behind them.
- All of the above plus clusters, accelerated cohort modes, distance learning, etc.
- Every option should be utilized. E-learning, mentoring, interaction, etc.
- Prior knowledge may be assessed so that the advanced student's learning experience will be enhanced, not duplicative. Learning communities benefit both the advanced and regular student.
- As many options as possible should be offered, but it must be done in a manner that it doesn't drive upward the cost of education beyond cost goal.
- 8, 9, 10 & 11. Full array of options, seamless, trackless, classless--agree for some disciplines disagree for others. All depends on nature of the program. Some disciplines are focused while others less so. There is, and needs to be, a big difference between allied health programs and others like agriculture or computer science.
- Self-paced options; chunking of the curriculum; small group interaction.
- Options could be as simple as the work-related location and learning focus. Additional technology could also be used to accommodate individual differences.

- In addition to these noted potential delivery modalities, differential and flexible funding processes need to follow whatever flexible educational delivery options are implemented to support the institution's initiatives.

List your reactions, initial thoughts, comments, and/or any recommended changes to any statement(s) pertaining to Principle III:

- Related to item 11, if programs are truly competency based then this can easily be accomplished if institutions are truly concerned for students. By using a cluster concept item 10 could be accomplished. We can't allow the curriculum to be "owned" by a narrow program/department/occupation.

- Our systems need to change so that we are looking at it from the student's point of view not from our own sense of convenience.

- This principle will require greater flexibility than most public institutions will be allowed by state agency and/or legislature.

- Michigan community colleges have been good about coordinating various work-related programs. The foundation courses for many work related programs are the same or similar.

- Only trackless options where it makes sense within certain fields.

- I've answered these questions from a corporate client service point of view, not from the perspective of individual students pursuing career-entry related programs. Michael, a suggestion: it would have been helpful to include your description of the context for this series of questions - e.g. corporate/workplace based training or post-secondary programs or other.

- Having multiple options is missing in most programs.

- Seamless, trackless and classless options are essential to student matriculation in an ever changing environment.

- The matter of standards and institutional reputation still are important, so that while a program can be built for each student's needs, they cannot set the standard which can reduce to the lowest denominator if there is too much flexibility.

- The merits of work-related options should be evident so discussion can occur and the linkage identified.

- Often work-related experiences built from simple to complex. Therefore, a trackless system would not work. There are often differences in programs and the classless concept is not in place. It is difficult for programs to all be similar.

- As above, if “work-related” is deleted, the statement is still true.

List your reactions, initial thoughts, comments, and/or any recommended changes to any statement(s) pertaining to Principle IV:

- Linking the training to the workplace is critical, whether by electronic means or through hybrid credit/customized training programs. Using assessment in the workplace either as part of a course of instruction or as assessment of prior learning is an important piece of assuring the relevancy of the instructional program and creating a seamless environment between the "classroom" and the workplace.
- Research shows that collaborative learning results in increased learning
- Nothing to add.
- Electronic media has provided increased opportunities for many students.
- Learning communities are only one method.
- Connections need to be made between the training program and the workplace.
- Assessment is needed, we to be willing to take this step to evaluate the learning success.
- These are all great ideas, but can an institution afford the many options and is it feasible with faculty workload. There will have to be a balance.
- Community college[s] should take a leadership role in this experience and connecting to the community.
- “Should focus on creating communities” implies the exclusion of individual work. Depending on the nature of the discipline, work-related curriculum should focus on successfully working in communities or individually depending on what the work-related situation demands.
- Agree that communities should be formed but disagree that the technology solutions suggested in the question are the only, best, or needed way to do that for all disciplines.
- “Assessment services in the workplace”: some areas yes, others no--or only if requested.
- Sometimes in a work-related setting, the electronic format is not needed. The hands-on focus supercedes the technological format.
- Providing workplace assessment services requires support, operational and financial, from the external organization. Not routinely easy to obtain.

List your reactions, initial thoughts, comments, and/or any recommended changes to any statement(s) pertaining to Principle V:

- Department and course needs should align with what the learner needs and what the industry needs but often they do not. What learners need to know and what industry defines as essential skills should drive where resources and personnel are applied. Work-related students can and should be used to assist others learning as well as to enhance their own skills, not to reduce personnel costs.
- I dislike the word “facilitator” in this context but have not been able to figure out a better term!
- Nothing to add.
- Students should participate as facilitators who can be of assistance. Otherwise the skills gap could worsen if untrained students are put into a facilitator role.
- Principle V should be reconsidered in light of research showing distinctions between experts and novices, particularly in the workplace. The word "facilitators" fails to capture the role of the expert with regard to a novice. This relationship is more than facilitation.
- Facilitated learning is the best way to engage students.
- The student's role as learning facilitator will be one of their most valuable learning experiences.
- Personnel must have expertise, it's not the student revolution of the 1970s where learners dictate what they should know and learn.
- 15 & 16. Implies one or the other. Suggest faculty should be course content experts based on department needs that can adjust to individual learner needs that change over time.
- Work-related education students, if in a learning role should have the needed mentorship and not be expected to replace other personnel.

List your reactions, initial thoughts, comments, and/or any recommended changes to any statement(s) pertaining to Principle VI:

- Competency attainment, as defined by industry skill standards, should be the criteria for exit, although there must be multiple exit points based on sequences or clusters of competencies. Certifications where available should be the method of demonstrating competencies. Certifications and licenses, where available should

be the primary documentation of learning but portfolios are the preferred mechanism for presenting documented learning.

- I don't think we should land on a specific assessment method. The assessment method should be tied to what is appropriate for the content and the pedagogy.
- Nothing to add.
- Paying to establish standards should not burden the community colleges. Industry should partner with community colleges to establish standards.
- Re #21 - industry certification systems or standards are also used as benchmarks.
- Again - there are so many types of work-related learning it is hard to answer these questions categorically.
- Having work-related educational competencies for completing the program should be a requirement.
- Assessment is very complicated--it is needed, but one “glove" will not fit all.
- Standards need to be determined but institutions may be able to do so on their own.
- Multiple measures should be the primary means of documenting learning and portfolios can be an important part of those measures in most disciplines but not all.
- While portfolio assessment is excellent, there are other means to assess work-related education. Standards can be set by faculty as opposed to employing specialists.
- While 'portfolio' is a potential wide-ranging concept, defining it relative to each program/institution and career field will be very difficult for diverse work environments. Community colleges receive minimum resources to accomplish incoming assessment of student readiness to learn, etc. Additional assessments would be valuable but time-consuming for the student and expensive for the college. Many adult learners would resist the additional assessment components inasmuch as they are not seeking degrees, just focused coursework.

List your reactions, initial thoughts, comments, and/or any recommended changes to any statement(s) concerning mission and organization:

- General and transfer education and work-related education should support each other rather than compete for institutional resources. All education is, ultimately, work-related education.
- Nothing to add.

- Work-related education has always been a hallmark of the comprehensive community college.

- A mission should remain broad. Vision and values can capture work-related education. Also work-related education should include an entrepreneurial orientation which can be diminished if "centrally planned and funded."

- If work-related education is not included in the mission it will never be integrated in the organization.

- There is a place for work-related education in the CC mission, but it should not be the driver of the mission--it is one element.

- Work-related education is one means of education, but other means may be just as valid.

List your reactions, initial thoughts, comments, and/or any recommended changes to any statement(s) concerning funding:

- I'm not sure how you measure or administer funding based on instructional innovation, at least through a formula. Funding formulas should take into account the critical mission that community colleges play in our economy.

- Nothing to add.

- Funding needs to be linked to work-related education.

- Again, CCs are not all alike and they serve different needs and populations. Many are primarily transfer institutions. There goals are different. Funding should be driven by college mission.

- It's about learning which may or not include innovation--certainly not for its own sake just as it improves learning in necessary areas of study.

- Need change very rapidly; a single focus formula would not be flexible.

- "Emerging workforce" is only one component of a community college audience. "Transitioning" and "incumbent" workers are also vital and an immediate priority.

List your reactions, initial thoughts, comments, and/or any recommended changes to any statement(s) concerning needs assessment and documenting success:

- Certificates and degrees are only one indicator of the effectiveness of work-related education in an institution. Customer satisfaction, employment rates, retention

rates and increased wages are also keys. Measuring accountability for work-related education is a very complex process that we have not spent enough time on.

- 28 - Depends on the intent of the student. Especially in work-related education, certificates and degree completion are not necessarily the best measures. 29- I don't know that we generate jobs. We help attract jobs because we assist in the development of a trained workforce (the #1 reason why businesses locate in a given area) but it's the businesses that generate the jobs.

- There is also a "value-added" success measure when the learner acquires his/her desired learning even when that may be only one course.

- Industry is responsible for generating jobs, upgrading employees and communities with business are responsible for economic development as is the state. Question 29 is a very bad item. For question 27, economists who are prominent in monitoring local labor markets and researchers in higher education, including community colleges, should be the experts. Community colleges cannot do this by themselves.

- #28 - relevance and responsiveness to industry needs would be a more relevant measure.

- Colleges can rely upon experts from other organizations; they don't need to replicate expertise available in other spheres.

- Our success is when our students are successful.

- Measures of success should consider a student's educational attainment, skill acquisition and employment even if certificate or degree is not completed.

- #28 & 29 are not clear. Success of what--the college, the work-related program. The work related activity/program will be just a part of the college. Success for it should be measurement of predetermined goals.

- All of the above merit consideration.

- #27. Colleges need to be active partners with others in the local community in collecting data and looking at trends and experts in translating that information into effective educational plans.

- #28. Success should be measured by multiple means, including those listed but those exclusively.

- Some students in programs are recruited prior to graduation because of the labor needs. They may not complete the program, but they have a good job (which met their goal).

- Success is a multi-layered concept. MANY/most adult participants are not enrolled in degree or formal lengthy certificate programs, but need/want short, very short, assistance. Success needs to be measured at the user/student level, not at the program completion level.

List your reactions, initial thoughts, comments, and/or any recommended changes to any

statement(s) concerning instruction, programs, and delivery systems:

- There can be no either/or choices relative to entry level vs. advanced skills or single occupation vs. cluster. Some populations need to become quickly engaged in the workplace through basic entry-level skills, but we then need to have a pathway for them to advance and grow. Treating work-related education as the add-on and traditional credit as the funded core will probably lead to weakness in both. Credit is one form of credentialing. There are others. It is counterproductive to view this as a dichotomy.

- Work-related education programs should reflect the needs of businesses in the community and should not be limited to any specific level of skill development

- Nothing to add.

- The relationship between work-related education and regular college programming often depends on the community the college serves.

- Regarding item 35; If business and industry needs learning customized to their company it can be part of a revenue generation center. This type of learning is aligned with the business goals and objective for their organization.

- Work-related brings into consideration the real world. Balance should be considered.

List your reactions, initial thoughts, comments, and/or any recommended changes to any

statement(s) concerning staffing:

- Staffing patterns and budgeted positions should be based on the needs of students, not the traditional political pecking order within the institution. Advisory committees should provide real input to faculty but they often don't. Faculty can influence the selection and input of advisory council members to support their point of view. There are multiple sources of real world input. Student services should be equivalent but not necessarily delivered in the same way to work-related students.

- Nothing to add.

- #38 - also need market scanning on a regular basis to ensure curriculum relevance and to understand how the workplace is changing in terms of processes, etc.

- Work-related education faculty and staff need real workplace experience to communicate effectively with students. This statement is one of the most important issues for work-related education.

- Work-related [education] should be considered permanent and support and funded as same.

- The questions indicate that work-related is frequently not 'credit' programming. Untrue. Work-related does not preclude traditional credit recognition and valuation.

List your reactions, initial thoughts, comments, and/or any recommended changes to any statement(s) concerning coordination and planning:

- Building partnerships with business, economic development and other educational institutions are the key to effectively addressing workforce needs locally, regionally, and globally.

- Collaboration and partnership are essential in these times of constrained resources.

- Nothing to add.

- Community colleges should be externally focused.

- Partnerships with business and industry that help with providing real world education are the most critical issue for success.

- These are all important to quality work-related education program[s].

- Coalitions help augment funding and provide a different perspective.

- In these times of decreased funding, it is very important for community colleges to work together to meet the needs of the state.

Please list any other principles, components, changes in service delivery, and innovative "ways of thinking" which you believe would contribute to a common definition for work-related education.

- We need to focus on integrating general and transfer education with work related education and integrating credit and non-credit work-related education. Our focus should be more on creating an integrated model than defining what is and what is not workforce education. If we can accomplish this then there will be no need for there to be winners and losers within the institutions based on academic vs. career or credit vs. non-credit.

- Given the demographic and socioeconomic changes taking place in the United States, community colleges must develop equal partnerships with the private sector and non-profit organizations to provide funding resources that permit work-related education students to pursue their learning without financial restraints on tuition/books.

- See attached. As you can see from my attached responses I am not one for lumping all of work-related academic programs into single or simple uniform definitions. I believe the greatest need is to have a common set of definitions for each of the multiple roles that community colleges provide in work-related programs.

- National proclamations don't do much for us.

- #45 - the results of college work in this aspect should demonstrate value-add to industry.

- We just need to get people to recognize that in this age of the Knowledge Worker - learning is learning is learning.

- Community colleges will vary across the country. I believe it will be difficult to have a national database that adds value.

- The community college should assume the primary role in coordinating curricular linkages (in work-related education) between high schools, community colleges and universities to eliminate duplication and gaps in learning experiences for students.

- It is important to recognize work-related education programs will compete with other educational programs within the institution for resources. Any attempt to promote the learning college as an end-all or work-related education as primary will be a disservice to the overall mission of the CC. These programs must be part of the overall programming in the CC.

- Work related experiences position students for the real world. Theories and experience help them to succeed.

- Many of the questions are worded in a way that is reductionism in nature (the course should XY, or the role of is AB) as opposed to a more inclusive ”one of the essential roles of the course should be to XY something” compound answer.

- Work-related education at a community college is so diverse that it [is] difficult to answer many of your questions without qualifying each answer. For example, I may strongly disagree with something if I were answering for mature degree holding students enrolled in a course for skill enhancement while strongly agreeing with the same question if it were to apply to a young first time college student.

- Similar, some programs need to be very skill based and narrowly focused while in other programs are a balance between focused skill development and broader based (almost GE like) in focus.

- #42. This is the historic debate on the definition of “community” in “community” college. Should a community college exist to meet the needs of the local community within the local community or prepare learners within the local community to go out into the bigger world? The answer depends on the local community and the nature of the college mission and funding source. As a result the answer is very campus centered and individual program related. If one college has the only program in the state teaching X then the answer is different for that program than for one where multiple options exist to get the same program.

- Perhaps the majority of community college programming is “work-related,” and much of the liberal arts enrollment is driven by work-related student enrollment to complete degrees and certificates. Community colleges are broad in focus and format, diverse in size and location. Attempting to make all into one will be counterproductive due to differential funding and operational realities. Perhaps the dialogue should be centered on not “work-relatedness” but “meeting the needs of our student/community/region” to enhance our economic competitiveness and individual success.

Round Two Qualitative Data Provided by Participants

Please provide your underlying reasons for any statement(s) with which you may take exception with the converging group view pertaining to Principle I (please identify by statement #):

- Although 2 and 3 are not mutually exclusive, I believe that workforce education is somewhat more incremental rather than sudden and dramatic.

- No change from my last response.

- I strongly believe that experiential learning is essential and that's why I answered “strongly agree” for item #3.

- Please provide your underlying reasons for any statement(s) with which you may take exception with the converging group view pertaining to Principle II (please identify by statement #):

- Work related education should be tailored, based on the needs and prior learning experiences. I'm not sure what was meant by "negotiated contract" in 7.

Please provide your underlying reasons for any statement(s) with which you may take exception with the converging group view pertaining to Principle III (please identify by statement #):

- #11. This is not an either/or proposition. Transferability will depend on articulated competencies and associated courses or internships.
- #11. Some work-related programs need to have the structure of coursework and its passage for accreditation.
- #10. While there may be some common courses between programs, many work-related programs have specific courses and there would be limits in the number of common beginning courses.
- #9. While seamless programs would be a wonderful goal, it is probably not reasonable for many programs to be highly seamless.
- If by "classless" you mean less or no reliance on seat time as a measure in favor of competencies, then I strongly agree.

Please provide your underlying reasons for any statement(s) with which you may take exception with the converging group view pertaining to Principle IV (please identify by statement #):

- If coursework in the workplace is to be part of the students' performance either through prior learning assessment or part of a formal educational program, then we must assess its relevance.
-
- #14.1. Establishing learning communities in the workplace is not easy or inexpensive. Nice concept but probability of success is low.
- Please provide your underlying reasons for any statement(s) with which you may take exception with the converging group view pertaining to Principle V (please identify by statement #):
- #16. Work-related education personnel should be hired based on their pedagogical content knowledge as well as the needs of learners.
- WR students usually end up as informal learning facilitators for their fellow students but individual schedules may limit how formal this arrangement could be.

- Student participation as facilitators is a valuable learning technique, but is questionable that they can be used to the extent of reducing personnel costs or responsibilities due to professional responsibilities and requirements.

- #17.2. Students should help facilitate learning but for other reasons

- #17.2. The reason for having students involved as learning facilitators should not be based on reduction of cost and/or free faculty time, rather it should be based on the concept of team-building skills.

Please provide your underlying reasons for any statement(s) with which you may take exception with the converging group view pertaining to Principle VI (please identify by statement #):

- The assessment method used should depend on its validity and reliability. Portfolio may be one of many assessment methods to be considered.

- Portfolios are great and help document learning but credentials, particularly competency based certifications and licenses should be primary.

- #20 and 21. I don't think there is one right way. Multiple methods to meet multiple needs.

Please provide your underlying reasons for any statement(s) with which you may take exception with the converging group view pertaining to concerning mission and organization (please identify by statement #):

- #22. A mission statement should be broad in scope that encompasses various means of education delivery. Specific mention work-related education should be addressed in the institution's values or goals.

- #23.1 is two opposing questions in one question. I agree with one and disagree with the other. Please separate so we can render our opinions.

- WR education should have an entrepreneurial aspect but should not be totally autonomous from the rest of the institution. I consider WR education to be everything from regularly scheduled credit programs to cutting edge consulting and training.

- #23.1. compound question.

- #23 is a bad question, merging autonomy and entrepreneurism [sic]. It should have the entrepreneurial perspective, but it should not be autonomous.

Please provide your underlying reasons for any statement(s) with which you may take exception with the converging group view pertaining to funding (please identify by statement #):

- None

Please provide your underlying reasons for any statement(s) with which you may take exception with the converging group view pertaining to needs assessment and documenting success (please identify by statement #):

- #27. It is doubtful that community colleges have the faculty or staff with the intellectual expertise to be experts with monitoring labor markets. There are others who do this as their sole responsibility such as the state or federal Bureaus of Labor Statistics.
- Success should be measured in multiple ways. Program completion should not be the only or even primary means.
- #27.1. The need to rely on higher ed research/economists instead of other research/economists at the state or federal level is unclear. Good data [are] good data where the source and external data can present solid indications of economic and workforce requirements.

Please provide your underlying reasons for any statement(s) with which you may take exception with the converging group view pertaining to instruction, programs, and delivery systems (please identify by statement #):

- 35. Funding for this type of education needs to be flexible and treating work-related education as a revenue center allows for such flexibility.
- #35. Some programs will not generate additional revenue, but serve a strong community need.
- #31 The workforce is changing so rapidly that we need to educate problem solvers and thinkers to be prepared for the jobs of the future.
- #32. Many programs do focus on a specific job, but the career will evolve over time and change. The graduates need to be able to keep changing according to the labor needs.

- RE 34. We shouldn't look at WR education as just another stovepipe in the institution. It should be integrated with other college programming.

- #35. Primary programs related to work-related education should be part of the traditional credit programs. There may be opportunity to add revenue separate from the traditional credit programs, and some colleges may want to take advantage of this additional revenue.

Please provide your underlying reasons for any statement(s) with which you may take exception with the converging group view pertaining to staffing (please identify by statement #):

- #41 The student placement office should have a broader function to also assist graduates in finding jobs.

Please provide your underlying reasons for any statement(s) with which you may take exception with the converging group view pertaining to coordination and planning (please identify by statement #):

- None.

Please provide your underlying reasons for any statement(s) with which you may take exception with the converging group view pertaining to a wide-spread vision or national proclamation for work-related education(please identify by statement #):

- Re. 45. Defining roles also limits roles which could be a detriment as the needs of the workforce change.

Round Three Qualitative Data Provided by Participants

- #14.1. Community colleges should work with those in the workplace to determine if learning communities are appropriate.

- #6.1. Orientations should be standard content to ensure information is received and all students should be able to complete a required orientation within a fairly similar amount of time.

- #20.1. Work-related learning should be documented via program competencies, not an outside certification or license.

- #21.1. Community colleges can determine standards via surveys, etc, outside specialists are not always needed.

These qualitative comments were helpful in providing direction during the three rounds. Based on the quantity and quality of the responses, it was evident that the participants took the research process seriously and regarded their participation as a commitment toward furthering the body of knowledge in the area of work-related education. They made specific comments, useful insights, and a collective focus, which was used to refine the Delphi technique survey instrument over the three rounds.

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BIOGRAPHICAL SKETCH

Mike Droll has served as managing director of the National Alliance of Community and Technical Colleges since 2002. He is president-elect to the Florida Association for Institutional Research and an ad hoc member to the Florida Community College System strategic planning task force. In addition, Mike works as a consultant, concentrating on institutional effectiveness, strategic planning, and student learning outcomes assessment. He was the inaugural recipient of the Dr. James L. Wattenbarger fellowship in 2004.

Mike earned his Associate in Arts degree with distinction, Phi Theta Kappa, from Mesa Community College and then transferred to Arizona State University where he earned a Bachelor of Science degree in Computer Information Systems and his commission in the U.S. Air Force. During his 20-year Air Force career, he earned a Master of Science degree in Operations Management from the University of Arkansas. He also completed the Air Force Institute of Technology--Education with Industry and the Air University Academic Instructor School programs. Academic Instructor School preceded his appointment as an assistant professor at the University of Louisville where he taught the leadership and management curriculum to Air Force ROTC cadets.

Prior to returning to Florida in 2000, Mike taught high school accounting, computer programming, and software applications under the Troops to Teachers program. Mike transitioned to the University of Florida from a grant position at Santa Fe Community College where he served as a member of the successful reaffirmation leadership team in the Office of Institutional Research and Planning.