

A PLANNING STRATEGY FOR THE DEVELOPMENT
OF ONLINE COURSES FOR WORKFORCE
TEACHER EDUCATION PROGRAMS

By

YAHYA MAT SOM

Bachelor of Science
University of Technology Malaysia
Johor Bahru, Malaysia
1991

Master of Science
Oklahoma State University
Stillwater, Oklahoma
1997

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF EDUCATION
July, 2000

Thesis
2000D
M425p

COPYRIGHT

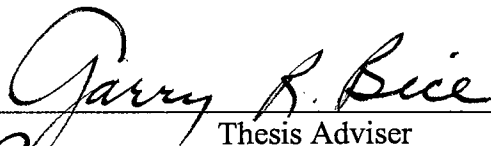
By

Yahya Mat Som

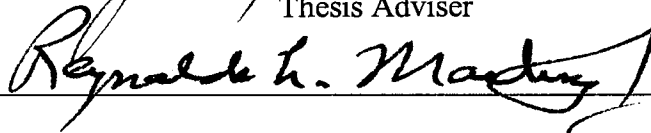
July 2000

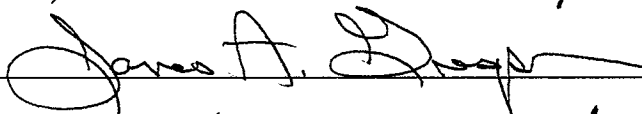
A PLANNING STRATEGY FOR THE DEVELOPMENT
OF ONLINE COURSES FOR WORKFORCE
TEACHER EDUCATION PROGRAMS

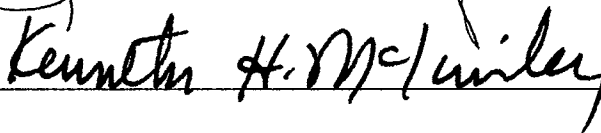
Thesis Approved:

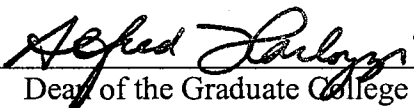


Thesis Adviser









Dean of the Graduate College

ACKNOWLEDGEMENTS

In the name of God the Most Compassionate and the Most Merciful.

All praise be to God who has given me the help, guidance, and strength in accomplishing this study, completing the manuscript, and attaining my highest education. My special gratitude and deepest appreciation are expressed to my parents, Mat Som Marzuki, father, and Mardziah Asban, mother, for their love, care, and sacrifices. Also, for giving me the meaning of life, for imparting in me the importance of education, and for cultivating the faith and trust in the Almighty.

My deepest appreciation is extended to my wife – Fauziah Abdullah, for her consistent support and sacrifices throughout my quest for higher education. Appreciation is also dedicated to my children Aisyah, Farhan, Shahirah, Syahiidah, and Ridzuan for their patience and understanding, and unwavering belief that I am their role model.

Special appreciation is given to Dr. Garry R. Bice (dissertation and program advisor), Dr. James A. Gregson and Dr. Reynaldo L. Martinez (mentors and committee members), and Dr. Cheryl E.P. Evanciew (very special colleague) for their assistance, guidance, encouragement, and commitment toward my completion of the dissertation and my graduate education. Appreciation is also extended to Dr. Kenneth McKinley (committee member) for his assistance and guidance in my completion of dissertation.

Special thanks is expressed to Norma Mack and Stephanie Coca for their time, effort, and expertise in proofing this manuscript. Sincere appreciation is also given to all

participants of this study who have contributed their time and knowledge. Finally, thanks to all my relatives, teachers, and friends for their support and encouragement in my entire formal education processes.

TABLE OF CONTENTS

Chapter

	Page
I. INTRODUCTION	
Statement of the Problem	3
Purpose of the Research	4
Objectives	5
Research Questions	5
Need for the Study	6
Assumptions of the Study	8
Limitations of the Study	8
Significance of the Study	9
Definition of Terms	10
II. REVIEW OF THE LITERATURE	
Characteristics and Definition of Distance Education	12
Debate on Distance Education	14
Theory and Framework of Distance Education	15
Issues of Distance Education Students	21
Issues of Distance Teaching	26
Issues and Trends of Distance Technologies	27
Instructional Designs in Distance Education	29
Guides to Develop Online Course	34
Strategic Planning	38
Decision Making	41
Summary	46
III. METHODOLOGY	
Overview	49
Sample	50
Instrument, Data Collection and Analysis.....	53
Summary	63

IV. RESULTS AND FINDINGS

Research Questions	66
Sample	67
Findings of Delphi Surveys	69
Complete Findings of the Delphi Study	70
Summary	90

V. SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Objectives and Questions of the Study	93
Conclusion and Summary of the Findings.....	94
Recommendations	98

BIBLIOGRAPHY	104
--------------------	-----

APPENDIXES

APPENDIX A -- INSTITUTIONAL REVIEW BOARD	115
APPENDIX B -- E-MAIL MESSAGE TO NOMINATORS	117
APPENDIX C -- UCWHRE INSTITUTIONS AND FACULTY PARTICIPATION IN THE STUDY	119
APPENDIX D -- E-MAIL MESSAGE TO NOMINEES	121
APPENDIX E -- CONSENT FORM	123
APPENDIX F -- ROUND ONE SURVEY MATERIAL	125
APPENDIX G -- U.S. POSTAL SERVICE INVITATION LETTER	127
APPENDIX H -- ROUND TWO SURVEY MATERIAL	130
APPENDIX I -- ROUND THREE SURVEY MATERIAL	133
APPENDIX J -- ROUND FOUR SURVEY MATERIAL	137
APPENDIX K -- MATRIX FORMAT	142
APPENDIX L -- RESULTS OF ROUND ONE SURVEY	144
APPENDIX M -- RESULTS OF ROUND TWO SURVEY	146

LIST OF TABLES

Table	Page
I. Pattern of the Respondents in the Study	68
II. UCWHRE Institutions and Faculty Participation in the Study	68
III. Elements Ranked Based on Sequence and Importance	71
IV. Comparison of Means for Factors that were Ranked Number One in Each Element	73
V. Factors Ranked Based on Their Importance	74
VI. Category of factors Based on their Importance	77
VII. Experience of Utilizing Distance Learning Tools	80
VIII. Distance Teaching Experience	81
IX. Comparison of Ranking on the Order of Importance Between Faculty of Difference Distance Education Experiences	82
X. Comparison of Ranks of Factors in the Order of Importance: Based of the Number of Distance Classes Conducted	84
XI. Potential of Future Online Class for WTE Programs	86
XII. Impact of the Strategy on the Current Distance Learning Classes for the Faculty in the WRE Programs	87
XIII. Influence of the Strategy on the Online Classes for Faculty in WTE Programs	87

LIST OF FIGURES

Figure	Page
1. A Decision-making Strategy for the Development of Online Courses.....	89
2. A Planning Strategy for the Development of Online Courses.....	103

CHAPTER I

INTRODUCTION

Sophisticated electronic and digital technologies were transforming the world of education, both inside and outside the classroom. These technologies were radically altering instructional activities and changing the sense of formal education realities. With such development, teaching and learning were no longer confined to a walled classroom and may be delivered at vast distances - at any time, place, and context (Leh & Matsom, 1999).

Various tools (i.e. electronic and computer technologies) were used for different forms of distance education (Rosenberg, 1997). Each of these tools was used depending on the need, suitability, and logistical reasons of a program or an institution. However, technological advances and sophistication allow contemporary distance educational environment(s) to merge and integrate different distance education strategies and various technologies instead of competing with each other. This integration creates more flexible and dynamic distance education environments. As a result, contemporary distance learning courses can be delivered in a more effective and efficient manner than ever before (Simmons, Smaldino, Albright, & Zvacek, 2000).

Distance learning opportunities that were possible through flexible and dynamic delivery technology had increased the number of students attaining academic degrees. This emerging phenomenon had influenced more university officials to encourage their faculty to convert more traditional courses to online classes or other forms of distance

education techniques (Moore, 1997). Many faculty welcomed the opportunity to use new technologies for delivering their courses, but many of them also resisted this effort for various reasons (Dede, 1997).

In the traditional classroom environment, students and educators had the opportunity to simultaneously and spontaneously interact and communicate face-to-face between and among themselves. However, in online classes those possibilities were limited for various reasons. Class communication and interaction were dependent on the types of technologies used. Also, it was critical to utilize various forms of instruction strategies that were allowed by the new technologies (Matsom, 1999).

In order for an online class to be effective and reliable, the delivery strategy should be carefully planned and prepared (Moore, 1998). The online educators should be able to apply their professional skills during the course preparation stage and their instructional skills during the execution stage. Such preparation would lead to the success of online courses, especially if the personalization of teaching and the enhancement of learning were expected to be performed (Cyr, 1999.)

Wagner and McCombs (1994) proposed three effective guidelines for designing instruction. Those guidelines were: (a) the opportunity for students to operate holistically; (b) students' individual perception and evaluation should develop their behavior; and (c) students' overall development should be a dynamic growth process. These guidelines showed that online learning was suitable to be utilized for improving teaching and learning, especially when students were central to the education processes.

Online educators were faced with challenges of converting traditional classroom activities to online class activities (Simmons et. al., 2000). The ability of the online

educators transferring and transforming traditional class activities to online activities without affecting students' concentration, motivation, thought, mastery, and comprehension was critical. Online educators were also expected to deliver the same quality of education as the traditional class in order for online teaching to be accepted as a future main stream of education delivery (Moore, 1999). Thus, it was important to use a strategy to minimize these challenges and to help online educators in an online course development process.

Statement of the Problem

Currently, university faculty are exposed to many forms of online delivery tools such as e-mail, listservs, web pages, chatrooms, threaded discussions, desktop conferencing, digital multimedia, and others. These opportunities might allow faculty to use an online format to deliver their classes. However, there were other reasons faculty delivered classes online. They were encouraged or mandated by the universities or were voluntarily experimenting with the new delivery approach. Some faculty used a complete online format of delivery whereas others incorporated and integrated various forms of delivery technologies or approaches (Rosenberg, 1997).

A study conducted by Ndahi (1998) showed the faculty in Workforce Teacher Education (WTE) programs at the University Council for Workforce and Human Resources (UCWHRE) institutions have not used a customized strategy for planning their online course development. There was also no evidence from literature that an empirical study had been conducted by these institutions to develop the strategy. Nevertheless,

Harrison (1999), and Seels and Glasgow (1998) contended that literature on instructional design and distance learning indicated the need for a systematic approach for online course development. Therefore, the problem faced by the WTE online faculty was that there was no empirically developed strategy for planning online course development for WTE programs in the UCWHRE institutions.

Purpose of the Research

The purpose of this study was to develop a scholarly planning strategy for online course development for Workforce Teacher Education programs at the university level. The result of this study would provide educators with more information to better understand, plan, design, develop, and manage online courses using the internet as the delivery tool.

Null Hypothesis

Two null hypotheses were developed to test the significance of the relationship among the respondent rankings as the following:

(1) Ho: There was no relationship between the individual respondents on the ranks of the *elements* of the strategy in the *order of sequence*; and

(2) Ho: There was no relationship between the individual respondents on the ranks of the *elements* of the strategy in the *order of importance*.

Objectives

To accomplish the purpose of the study, the following objectives had to be attained.

1. Determine the *elements* of the strategy and rank them in *the order of sequence and importance*.
2. Determine the *factors* of the strategy and rank them *in the order of priority of importance*.
3. Determine if distance education faculty with *different distance learning experiences* (i.e. number of times conducting online classes) *would rank the elements and factors differently*.
4. Determine if the planning strategy would be helpful for online course development for the faculty in WTE programs at UCWHRE institutions.
5. Develop a planning strategy for online course development for distance education faculty in WTE programs at UCWHRE institutions.

Research Questions

The following research questions were developed to guide the study.

1. What are the *elements* of the model that are identified by distance education faculty in the decision to develop a strategy for the planning of online course development?
2. According to the distance education faculty, what are the *relative ranks of*

sequence_and importance of these *elements* of the strategy?

3. What are the *factors* of the model that are identified by distance education faculty in the decision to develop a strategy for the planning of online course development?

4. According to the distance education faculty, what are the relative *ranks of importance* of these *factors* of the strategy?

5. Do the distance education faculty have experience utilizing different distance learning tools?

6. Do the distance education faculty of different learning experiences (i.e. number of times conducting distance classes) *rank the elements* of the strategy differently?

7. Do the distance education faculty of different learning experiences (i.e. number of times conducting distance classes) *rank the factors* of the strategy differently?

8. What suggestions do the distance education faculty have on the utility and usability of the proposed strategic model?

9. Based upon the results of the Delphi study and review of the literature, what will be the suggested model of the strategy?

Need for the Study

In the new educational paradigm, computer and information technologies were the means to change the activities, interaction, and relationship between online educators and students, as well as among students. With proper planning and use, computer and information technologies could empower online educators' creativity and students'

responsibility for their own learning. Moreover, the incorporation of computer and information technologies into the educational setting had shown to improve students' abilities to be self-directed learners (Harrison, 1999). Computer technology could help students be more motivated, feel that they exercise control over their learning experiences, and become accountable for their own learning outcomes (Wagner & McCombs, 1994). Computer technology could serve as a catalyst to transform teaching and learning, and to expand learning productivity and possibilities (Pallof, 1999).

Future education needs effective programs in order to keep up with the new challenges and dynamic evolution of knowledge, computers, and information technologies. Online programs, especially, could be much more affected by these matters. Therefore, a systematic planning approach to properly guide online educators for the development of online courses was needed (Glasgow & Seels, 1998).

There were online educators who were unable to effectively implement their programs or courses. This problem was related to the misuse or misunderstanding about data to be used and lack of desired strategies to properly plan, design, and develop their programs and courses (Richardson, 1984). The case became even more alarming when online educators had limited understanding of the interaction of the many factors that were involved in the planning for the development of programs or courses.

Shumaker (1993) stated that if the factors of planning and designing could be compiled to form a strategy, program planning and development could be greatly improved and enhanced. A strategy could provide a direction for organizing and conducting a planning effort that would improve and strengthen a program or course.

Moreover, a strategy could also be used to simplify the complex phenomena and to understand the whole concept of program planning that was elusive.

Assumptions of the Study

The study was conducted with the following assumptions:

1. The selection of the participants was based on their expertise.
2. The responses given by the participants was a truly valid judgement based on their knowledge, skills, experience, talents, and intuitions that emanate from their philosophical beliefs and values.
3. The faculty of the Workforce Teacher Education programs at the UCWHRE institutions who were involved in this study were equally competent in distance education and traditional face-to-face instruction as faculty from other programs.

Limitations of the Study

The following limitations will apply to the study:

1. The strategy will be specifically designed for the planning of online course development for the Workforce Teacher Education programs at the university level. The selection of the elements, along with their interpretation, may be applicable to transfer traditional instruction into online instruction, and will be best applied for integrating different types of instructional technologies for online courses.

2. The elements and factors generated in this study and the development of the planning strategy will be based upon the perceptions of the selected participants from the UCWHRE institutions who are involved with the Workforce Teacher Education programs and have experience in distance learning. No further attempt will be made by the researcher to validate those perceptions.

3. The results of this study and the conclusions were based the Delphi Panel that were selected from the UCWHRE institutions, thus the findings may not be representative to the whole nation of other programs.

Significance of the study

Online classes at the university level appeared to be more popular than ever before. The numbers of traditional courses converted to online courses were also rapidly increasing (National Center for Education Statistics, 1999), but faculty at the university level still lacked the experience and skills for dealing with online course development. This scenario became more complex when the online class consisted of diverse populations (i.e. geography, economy, culture and others), rapidly changed technologies, and knowledge expanded and grown exponentially. Also affected by this scenario were WTE distance education faculty at UCWHRE institutions (Ndahi, 1998). They needed a systematic planning strategy that would provide them with guidance for online course development. With such a strategy, course development could be more solid, reliable, and effective.

A planning strategy that emphasized on the interaction of many factors was

important to enable WTE faculty to review online class development. The planning strategy could also be a primary resource of systematic approach of planning and designing online classes. More importantly, the planning strategy that was developed based on the information collected from WTE faculty is more suitable and relevant to the needs of current and future WTE online course development in UCWHRE institutions.

Definition of Terms

For the purpose of this study, the following definition of terms is offered to provide clarity and consistency throughout this study:

Distance Education - A formal education that is delivered through electronic means using the Internet, satellite, radio, television, microwave, and telephone as the tools for communication and interaction. It can be in the form of synchronous or asynchronous modes of communication (Papay, 1998).

Distance education technologies – Includes compressed video, internet tools, video/audio conferencing, web-based, interactive television, microwave, and satellite.

Elements – Contents of different steps in a strategy.

Factors - Contents in the elements of the strategy that describe specific functions, needs, values, and descriptions.

Online Course – A course that is completely or partially delivered with the use of the Internet that incorporates a combination of technologies or a delivery technology (i.e. video, audio, phone, fax, animation, simulation, picture, text, and others). The students and the instructor are separated by distance.

Online Instruction - A method of delivery of a schedule, course materials, instructions, assignments, and tests using the Internet, where teacher and students do not physically meet face-to-face (Sliger, 1998).

Model - A preliminary pattern representing an item not yet constructed and serving as the plan from which the finished work, usually larger, will be produced (Gove, 1981).

Traditional Classroom – A course that is delivered in a confined classroom. Students and instructor meet face-to-face and interaction occurs in real and specific time.

Workforce Teacher Education program – A certification or non-certification program that prepares a teacher/trainer to instruct/train individuals for careers or employment. This includes Agriculture education, Family and Consumer Sciences Education, Trade and Industrial Education, Technology and Technical Education, Adult Education, and Human Resources Development Education.

CHAPTER II

REVIEW OF LITERATURE

Distance education was confronted with two big issues. First, usually students who were familiar with the traditional education formats would have problems participating in distance classes (Sorensen, 1993). These students had the perceptions that distance classes lacked of social interaction and were unable to provide the education they wanted. Second, there was a lot of evidence that students were increasingly demanding distance education classes (Moore, 1999). The forces to such a need included: the opportunity of going back to school while pursuing a professional career; the advantage not to have to travel to attend classes - timely and financially economical; and the chance to participate in a class whenever and wherever possible (Dede, 1998).

Characteristics and Definition of Distance Education

Distance education formats had changed many times. It was believed to have started with the correspondence school (e.g. using mail as the form of communication medium). When electronic equipment became available, distance education was delivered more efficiently and effectively by using the new communication media. During that time, distance instructions were mostly delivered through radio, telephone, satellite, television, and audio-video tapes. Currently, where digital technologies are more sophisticated, distance education is found to use a more complex instructional format

which incorporates picture, sound, motion, interaction, and other, and is able to serve a more diverse group of students (Dede, 1998; Moore, 1998; Simmons et al., 2000).

In the past 30 years, cognitive scientists were able to understand better the process and factors of why and how students learn (Tennyson, 1995; West, Farmer, & Wolf, 1991). Their findings led to a huge shift of philosophical thought in education and instructional practices. These factors combined with the sophisticated technologies had made distance education even more relevant to the Deweyen concept of “democracy” in education and the constructivist approach of learning (Pallof, 1999). New technologies and networked computers for example, allowed students access to activities of instructions that were individualized, synchronous, asynchronous, and authentic (Moore, 1998; and Simmons et al., 2000). These developments contributed to the increasing demand of distance education and the increase in number of adult students at the college level - who were more diverse and dynamic (NCES, 1999).

Also influenced by time were the definitions of distance education. Some of these definitions addressed the specific needs of the institutions and other definitions reflected a certain philosophy the institutions hold. The literature in distance education showed there were certain aspects of the definitions which were commonly accepted by most institutions: institutionalized, formalized education, geographical education, connected by means of technologies, accessible resources, interaction among learners and instructors, and supervised students learning or activities (Dede, 1998; Moore, 1998; Simmons et al., 2000; Welsh, 1999).

Dan Coldeway (cited in Simmons et al., 2000) provided a framework in which education could be practiced: the same-time and same-place education, the different-time

and same-place education, the same-time and different-place education, and the different-time and different-place education. Many scholars in distance education agreed with the framework and considered the complete form of distance education as the occurrence of teaching and learning at a different-time and different-place (Dan Coldewey as cited in Simmons et al., 2000). Keegan (1986) identified the following five primary elements that should be included in the definitions of distance education: (a) teacher and learner were separated in the learning process; (b) the planning and preparation of instruction involved an institution; (c) learner, teacher, and resources were united by media; (d) two-way communication was provided; and (e) learning group absent throughout the learning process. Garrison and Shale (1987) added communication between (among) the instructor and the student(s) should occur contiguously.

Debate on Distance Education

Clark (1994) criticized that technologies were just a mere vehicle that did not have any influence in students learning achievement. Even the modern distance education technologies “had little or any advantage over the method of learning” (Clark as cited in Simmons et al., 2000, p. 8). Clark believed the contents of instruction, the method used to promote learning, and the involvement of the learner in the instructional experience were the factors that affected learning.

Contrary to Clark’s argument, Finn (1964), Rosenberg (1998), and Dede (1996) believed that, correct application of distance learning would significantly change and restructure learning and teaching. In fact, distance education should be an option for

viable teaching and learning approaches. Pallof (1999) stated changes (i.e. students learning and achievement) occurred in educational settings because technologies created new ways of conducting instruction.

Despite the criticism on distance education, its popularity as one of the mainstays of educational delivery was significant. Many countries around the world used a certain form of distance education delivery for educating their citizens, for social economic needs, and for political reasons. Considering the advancement of distance education technologies and the improvement of teaching methods, distance education had gained continuous recognition in the global arena (Simmons et al., 2000).

Theory and Framework of Distance Education

There were many skills and aspects (i.e. clarity and steps of instruction, effective class management, and relationship) of traditional classroom teaching that could be used in distance instruction (Cyr, 1997; and Matsom 1999). These universally accepted skills however, did not add to the understanding of the fundamental foundation of distance education (Holmberg, 1988). Many scholars in education, Cropley and Khal (1983), Holmberg (1986), Keegan (1988), and Shale (1987) recognized that, distance education was a distinct form of education, parallel and complementary to traditional education, and neither one could be totally separated from the other.

Simonson et al. (1998) suggested, distance education needed further clarification of the component within, and identification of the vital elements pertaining to teaching and learning. Keegan (1988) insisted, the lack of sound distance learning theory had

affected the developments or programs on distance learning. Thus, a strong theoretical foundation was needed to conceptualize, explain, and provide sound application of distance education (Holmberg, 1988; Keegan, 1988).

Keegan (1986) also suggested the following three frameworks for the development of distance education theory: (a) Is distance education an educational activity? (b) Is distance education a form of conventional education? and (c) Is distance education possible, or is it contradiction in terms? These frameworks would help to clarify the parameters within which distance education could work. Guided by these frameworks, Keegan (1986) theorized: (a) educational activities in distance education were dominant and their theoretical bases were within general education theory; (b) distance education was a distinct form of education; and (c) distance instruction was possible, but distance education was not. Keegan (1988) argued, “intersubjectivity” of educators and learner could be accomplished if the learning materials were designed to accommodate interpersonal communication and teaching could be conducted with a variety of techniques similar to the traditional classroom settings.

Theory of Independent Study

The very basic principle of distance education was to provide independent learning to students (Wedemayer, cited in Simmons et al., 2000). Wedemayer suggested 10 characteristics of distance education where technology could be used to provide independence to students’ learning. The characteristics were as the following: (a) greater learning responsibility for students; (b) freedom of custodial duties for faculty; (c)

availability of wider choices for students; (d) no time or limitation operation; (e) the utilization of effective and appropriate teaching tools and methods; (f) the integration of methods and media; (g) redesigned and redeveloped courses to fit the new format, (h) enhanced or preserved individual needs; (i) contextual evaluation of students achievement; and (j) students learning at their own pace.

In addition, Wedemayer offered six characteristics of independent study systems that allowed separation of teaching from learning: (a) separation of teacher and students; (b) students' activities would determine how learning occurred; (c) individualized teaching; (d) convenient learning environments for students; (e) students' learning pace and progress were their responsibilities; and (f) salient teaching and process through a medium. Wedemayer (cited in Simmons et al., 2000) concluded, the teacher-students relationship was the key to the success of distance education. On the same issue Moore (1970) formulated a distance education theory that was based on two variables of the learning process. The first variable was the amount of students' autonomy in their learning. This variable could be measured with: (a) the provision of dialog; and (b) the extent a program was responsive to individual students' needs. The second variable was that teachers and students should be separated and indicated by the degree of responsibilities the students hold in their learning. Three guiding questions were also provided in Moore's (1970) theoretical concept of distance education which could measure the degree of autonomy of the distance teacher and students as the following: (a) What were the selection of the objectives in the programs? (b) What were the selection and use of resource person, of bodies and other media? and (c) Who decided the method of evaluation and criteria to be used?

Theory of Industrialization of Teaching

Peters (1988) perceived education formats were driven by pre-industrialization and industrialization eras. The conventional education was more relevant to pre-industrialization eras and distance education was influenced by the industrialization era. Drawing from these assumptions, Peters (1988) suggested several categories that could promote better understanding and improvement of the analysis of conventional and distance education as the following; rationalization, division of labor, mechanization, assembly line, mass production, preparatory work, planning, organization, scientific control methods, formalization, standardization, change of function, objectification, and concentration and centralization.

The essential elements of Peters' (1988) thought about distance education were: (a) learning was greatly controlled by students; (b) technologies made distance education ineffective; (c) a carefully planned and designed quality course was needed; (d) a more rational teaching approach was needed; (e) an analysis of assessment was systematic; (f) distance education was more effective with facilitation and consultation approach of teaching; and (g) objectivity was the primary teaching function.

Theory of Interaction and Communication

Holmberg (1989) believed, mediated communication would lead to teaching and learning effectiveness and would impact emotion, and feeling as well as psychology. Mediated communication could also support students' motivation, develop rapport among participants, promote learning satisfaction, and interactive communication.

In this theory Holmberg (1989) listed seven assumptions as the following: (a) the interaction among participants were the crux of teaching; (b) effective teaching was indicated by students' acquisition of knowledge; (c) learning was strengthened by students' motivation; (d) learning motivation was increased by students' autonomy; (e) students' motivation was influenced by learning satisfaction; (f) the degree of accessibility, user friendliness and personal relationships contributed to students' learning satisfaction and motivation; and (g) personalization and emotional involvement promoted by learning satisfaction. In 1995, Holmberg, revisited the theory and added that distance education should address students' freedom of choice and independence of time, place, and range of time for a course. The revisited theory also included free access to learning, addressed the issue of equity, and should be a vital instrument for "recurrent" and lifelong learning.

Fordism, Neo-Fordism, and Post-Fordism Theory of Distance Education

Fordism, Neo-Fordism, and Post-Fordism distance education theory was the mainstream theory of distance education at the international level (Simmons et al., 2000). The primary focus of this theory was on the methods and how most of the countries around the world implemented their educational processes, administrations, and systems. However, in the United State of America (USA), this theory had little impact on distance education literature. The education system in the USA was primarily "local control, small classes, rapport between teachers and students, and highly personalized instruction",

(Simmons et al., 2000) and were highly recognized and appreciated (Moore, 1994; Thach & Murphy, 1994).

Many scholars of distance education (Badham & Mathews, 1989; Edward, 1995; Evans, 1995; Renner, 1995; Rumble, 1995) had debated Fordism, Neo-Fordism, and Post-Fordism distance education theory since it was first presented by Peters (1988).

Campion (1995) described this theory as the following:

(1) Fordist strategy - A form of distance education that was “fully centralized, single mode, national distance education provider, gaining greater economies of scale by offering courses to a mass market” (p. 38-39);

(2) The Neo-Fordist strategy - It “extends the Fordist system by allowing a much higher level of flexibility and diversity distance education might well be represented by centrally controlled, perhaps multinational, yet locally administered models of distance education” (p. 39); and

(3) The Post-Fordist strategy - It is characterized by “product innovation, process variability, and labor responsibility distance education would be decentralized and retain integration between the study modes.” (p. 39)

Theory of Synthesis in Distance Education

Perraton (1988) synthesized the existing theories of communication and diffusion into three categories. First, distance teaching maximized education. This category promoted to the notion that distance education should: (a) be a medium to teach anything; (b) address fix staffing ratio; (c) be cheaper than conventional education; (d) reach broader clients; and (e) economize the whole education system. The second category put more emphasis on dialog. Four elements in this category: (a) dialog is possible in distance teaching; (b) the role of the teacher changed based on communication medium; (c) group discussion promoted effective learning; and (d) local resources should be

utilized to support distance education. The third category addressed the importance of methodology in distance education that emphasized: (a) a more effective multimedia program compared to single media; (b) a systems approach to planning; (c) essential feedback essential; (d) effective learning by consistent involvement of students; and (e) effective teaching through organization of media utilization.

In a summary, distance education theories had shaped how educators, students and institutions perceived distance education today (Simmons et al., 2000). However, all these theories are new and have not being tested by time, especially, in the context of future sophisticated distance education technologies. It was important to understand that the distance education theories were still at its infancy when compared to the traditional education theories.

Issues of Distance Students

Distance education is seen to be more effective if the instructions are learner centered (Dede, 1998; Moore, 1998). The researcher who attended the Third Distance Research Conference in 1998 also agreed with this issue (Simmons et al., 2000).

Students Achievement

Russel (1999) web site of “No significance Difference Phenomenon” cited more than 300 research findings in distance education areas. The web site showed there were no significance differences in the study of: (a) student achievement in traditional class

delivery when compared to distance delivery; and (b) student achievement using different distance education delivery technologies. While, Clark (1993) also concluded from the findings of a collection of hundreds of research studies that, there was no significant difference of student learning achievement using different distance media. In contrast, many other research findings indicated that distance education increased students' achievement (Coggins, 1988; Fast, 1995; Martin & Rainey, 1993; Sorensen, 1995; Stone, 1992). Simmons et al. (2000) commented, despite these findings, the temptation to make comparisons between settings and media of distance education were continued.

Some examples of these studies that produced contradicting results were conducted by Cheng, Lehman, and Armstrong (1991), Bruming, Landis, Hoffman, and Grosskopf (1993), and Bramble and Martin (1995). Cheng et al. (1991) found that there was no significant difference in the overall course performance or attitudes between the graduate-level students taking traditional and computer conferencing classes. Bruming et al. (1993) in their two years of a longitudinal study discovered that there was no difference in the learning outcomes of an interactive telecourse students when compared to the traditional course students. Martin and Rainey (1993) concluded that the distance students' achievement using satellite delivery was found to be significant when compared to the traditional classroom students achievement (Martin & Rainey, 1993). Finally, Bramble and Martin (1995) reported that the trainees' test achievement on teletraining in military indicated significant difference when compared to the traditional delivery

From these examples, it was clear that most of the former studies indicated there were no significant differences in the students' achievement between those who enrolled in the distance courses versus the traditional courses. However, recent studies indicated

that distance classes were able to promote higher students' achievement when compared to the traditional classes.

Students Satisfaction

Students were found to develop their computer skills while taking a distance class. The students also felt positive with the class and felt they possessed the necessary skills to succeed (Ross, Morrison, Smith, Cleveland, 1991). Also, students were also found to have a higher anxiety level at the end of the semester than at the beginning of the semester (Jegade & Kirkwood, 1994).

Factors such as instructor, instructions, technology, course management, at-site personnel, promptness of material delivery, support services, and off-class communication with the instructor were found to contribute to distance education students' satisfaction (Biner, Dean, Mellinger, 1994). Also the students who received multi-site instruction, showed higher level of satisfaction with the format of instruction, as long as they were able to communicate one-to-one with the instructor (Sorensen, 1995).

Students Characteristics.

Coggins (1988) reported that completers and non-completers of distance education differed only slightly on "variables related to gender, occupation, marital status, presence or absence of children, distance from campus, or age of entry in the

baccalaureate program” (p. 54). The study also concluded that the non-completers tended to be students who needed step-by-step instructions. The completers who entered the program with higher levels of education “had greater expectation of earning higher grades as well as greater expectations of earning a degree” (p.54). Laube (1992) found, completers of a distance course to have higher educational goals and studied more than 10 hours a week. Bernt and Bugabee (1993) also reported that, the high achieving students in distance classes had better test strategies, concentration, and time management skills.

Dille and Mezack (1991) concluded that high risk telecourse students had the following characteristics: 25 years and older; divorced; less than 30 college credit hours completed; and Grade Point Averages less than 3.0. Fjortoft (1995) reported that, a self directed student had the potential to succeed in distance education classes. Binner, Bink, Huffman, and Dean (1995) found, students taking a telecourse tended to be more intelligent, emotionally stable, trusting, compulsive, passive, and conforming than the traditional students. The successful telecourse students tended to be self-sufficient students. They also concluded, the introverted students performed better in a telecourse class when compared to their performance in the traditional class.

As a summary, students with abstract learning styles would have a better chance to be successful as distance students. Also, the chances of these students to succeed were higher if their instructors were contacted regularly. In contrast, students with rigid or structured learning styles would have difficulty with distance education classes. These students - the structured learning styles, needed more guidance in the distance learning settings.

Interaction

The amount of interaction that occurred in distance classes had no impact on distance students' achievement (Beare, 1989). There was no significant difference in learning between the two groups of students on the level of verbal interaction using audio and video to supplement the traditional classroom delivery (Bauer & Rezabek, 1992). The isolation among the distance students did not have any effect on their learning experience (May, 1993). Moreover, the achievement between on-site and the distance students and a live interaction with instructor had no influence on students' success (Souder, 1993).

The increase in students' achievement and personal satisfaction in the learning process were related to the perceived level of overall class interaction rather than the perceived level of personal interaction (Fulford & Zhang, 1993). Increased student participation was also attributed to an enthusiastic instructors, involving sense of humor, providing timely feedback, and practicing good teaching habits (Schonfelder, 1995). Finally, the increase of students' interactions in distance classes were attributed to active learning strategies, methods of acquiring feedback, methods of managing participation, technology management strategies, and personalizing the class (Baker, 1995).

In a summary, although different teaching strategies would contribute to an increase of students' participation and interactions, the amount of interactions and participation had little effect on students achievement and satisfaction (Bearer, 1989; Souder, 1993).

Issues of Distance Teaching

Teaching techniques for distance classes needed changes and should be revisited (Herring & Smaldino, 1997). In the current context of distance education, distance educators need more than the conventional distance teaching techniques to assure for effective instructions and learning to occur (Dede, 1998; Moore 1998). These perceptions are relevant to the current forms of distance education settings which take place in a different time and place, in a different time and in the same place, and at a different place and in the same time (Dan Coldeway, cited in Simmons et al, 2000).

A primary role of a distance educator was to provide adequate guidance and instructions to students in the learning process (Herring & Smaldino, 1997). In distance classes, since the opportunities for communicating instructions were limited, it was vital to limit the major concept in a single lesson (Cyrs & Smith, 1990). Simmons et al. (2000) suggested that, the issues of correct, proper, and adequate course contents were crucial in the Internet-based asynchronous learning environments. Properly outlined and clearly explained instructions were needed to assure distance students would follow correct assignments. Otherwise, the distance students might be confused and misguided by the class instruction as well as the materials.

In a distance learning environment, the student's responsibility for learning was increased (Keegan, 1988; Sourder, 1993). Distance educators were responsible to use methods of teaching that were focused on students (i.e. student-centered) and incorporated interactivity (Souder, 1993). However, Herring and Smaldino (1997) cautioned, a total focus of instructions on students would be a terrible mistake. Equally

important in distance education processes were the teacher, contents, and the delivery systems.

Many new “adopters” of distance education had the perception that, their instructions were dictated by the distance technologies that they had used to deliver their classes. Scholars in distance education (Dede, 1998; Greenwood & McDevitt, 1987; Herring & Smaldino, 1997; Souder, 1993) disagreed with such a perception. They believed distance technologies were tools to accomplish distance education goals. Therefore, the creativity of the instructor (i.e. choosing relevant strategies, considering a variety of techniques, applying new possibilities, and adjusting certain traditional skills) when teaching at a distance was crucial to the success of the distance instructions.

Issues and Trends of Distance Technologies

Which distance technologies should be utilized to increase student achievement, interaction satisfaction, learning, and participation? Are the technologies capable to improve teachers’ instruction, communication, teaching strategy, time and resource management? These issues had been investigated and debated many times (Simmons et. al., 2000).

Garrison (1990) argued that, the used of prepackaging instructional materials would ignore the essential nature of an educational learning experience. This method of delivery was inadequate and was to be considered as performing “instructions”. Delivering instruction using this technique did not involve the interactions of views and perspectives, although in several studies it was found that students “test achievement”

increased. The crux of Garrison's (1990) argument was, only distance education technologies that allowed two-way communication should be utilized in distance education settings. The isolated and independent forms of distance delivery are no longer relevant to the current context of distance education.

Tuckey (1993) reported, visual types of distance education technologies as more relevant to hard science (i.e. mathematics and science) courses. The computer conferencing types of distance education technologies were more suitable for the soft science courses - subjects that required extensive discourse. Aphen and Repman (1994) suggested that different distance education technologies met different needs of courses, clients and institutions. They also concluded that distance education technologies which provided two-way communication were important to the distance learning environment. These technologies contributed to the quantity and quality of both teacher and student interactions.

In a summary, in the new distance education environments where sophisticated distance technologies were available (Simmons et al., 2000) the use of prepackaging form of distance instructions should be avoided (Garrison, 1990). This was especially important when teaching and learning involved active participation and interactions between and among students and teachers. Distance education technologies that allowed visual presentations seemed to be more suitable for hard sciences areas. Other types of distance technologies that would at least allow for two-way communication were relevant to be used for "soft science" courses (Tuckey, 1993; Aphen & Repman, 1994).

Instructional Design in Distance Education

It was essential to properly plan both asynchronous or synchronous modes of distance teaching (Simmons et al., 2000). Scholars agreed that, planning of instructions was one of the most important and complex tasks of an educator (Dick & Carey, 1990; Gagne, 1992; Moore, 1997). The planning process involved orchestrating all elements within the system such as instructor, students, material, contents, and technology (Moore & Kearsley, 1996).

In order for teaching and learning effectiveness to occur in distance classes, planning of instruction should be based on rational and systematic approaches (Seels & Glasgow, 1998; Simmons et al., 2000). However, there were scholars who preferred not to use of systematic approach to planning. Primary disagreement between these two groups of scholars was based on the differences in their philosophical thoughts and approaches of teaching and learning (Seels & Glasgow, 1998).

Instructional system design (ISD) or instructional design (ID) were the two popular acronyms for the systematic planning process (Seels & Glasgow, 1998). In general, ID was defined as “a system that brings learner, instructor, instructional, materials, and environment together to achieve educational goals. All components work together to form an effective instruction” (Dick & Carey, p. 1990). Some of the ID models were linear in their sequence of steps and others were more flexible and interactive. However, depending on the contexts, both forms (i.e. linear or flexible) were equally capable to produce quality instruction (Dick & Carey, 1990; Seels & Glasgow, 1998).

Issues in Instructional Design Model

Scholars gave many reasons for the use of ID in the planning of instruction. Dick and Carey (1990) stated, ID was suitable to be used in the development of instruction because: (1) various studies have proven it was effective; and (2) it provided careful linkages between each component in the system. Gagne (1992) contended that, ID was needed because (1) it used various forms of information, data, and theoretical principle as input at each planning stage, and (2) helped instructors develop as fully as possible in his/her own individual direction.

Simmons et al. (2000) suggested that ID should be utilized in the development of instruction because of its ability to consider the interactions among the components in the ID and the ability to measure the effectiveness and quality of teaching and learning. Rothwell (1992) proposed the use of ID for planning instruction because of its ability to establish and maintain efficient and effective human performance, guide human performance through a simplified representation of factors, carry out systematically a planning process, and utilize the Open System Theory - receive input from the environment and submit output to the environment. Finally, McArdle (1991) stated, ID was important to help develop and deliver new knowledge, build new skills, and to change attitudes.

Using ID for the development of instruction was also criticized despite of its advantages. Gagne's (1992) ID model which emphasized and encompassed: activating motivation, informing learner on the objective, directing attention, stimulating recall,

providing learner guidance, enhancing retention, promoting transfer of learning, and providing feedback, was criticized by Laurillard (1993) in three aspects:

- (1) “The basis of Gagne’s work comes from and was constituted by theoretical construct of psychological disciplines that was relevant to other contexts. Further, there is no data in the theoretical development of this approach that derives from students learning in an instructional context.” (p.74);
- (2) “The analysis into components of teaching-learning process is not followed by any syntheses” (p.74); and
- (3) “ID does not find out the world is, it merely supposes..... It is rather like reading a treatise on medieval physics, where theories, if they were built on anything other than supposition, were built on other theories, rather than on descriptions of the phenomena themselves.” (p.75)

Types of ID models

According to Gagne (1992), and Seels and Glasgow (1998), ID was developed for the following purpose: (a) ID must be aimed at aiding the learning of the individual; (b) ID has phases that are both immediate and long range; (c) systematically designed instruction can greatly affect individual human development; (d) ID should be conducted by means of a system approach; and (e) designed instruction must be based on knowledge of how human beings learn. Based on these assumptions Gagne (1992) believed that ID would be able to attain multiple aims for instruction such as: (a) Intellectual skill - which permits the learner to carry out symbolic controlled procedures; (b) Cognitive strategies - the means by which learners exercise control over their own learning; (c) Verbal information - the facts and organized knowledge the world stored in the learner’s memory; (d) Attitude - the internal states that influence the personal action choices a learner makes; and (e) Motor skills - the movements of skeletal muscles organized to accomplish purposeful actions.

The development of ID was to serve various purposes. Among the most common uses of the ID models were for the development of specific instructions or training, the development of a program, and the development of an educational system. The following examples depict some of these models.

Four Step Model (McArdle, 1991). This model was suitable for the development of a training program. It consisted of a four step processes: (a) Planning - formulating the learning objectives, analyzing the training situation, outlining the body, and determining the method, sequence, and instructional approach; (b) Preparing - structuring information in a written framework, which includes an introduction, a main body, a conclusion, and a summary; (3) Conducting - the action portion of the design; and (c) Evaluating - to measure the understanding of the materials.

Instructional System (Gagne, 1992). This model was suitable for the development of an instruction and/or training. It consisted of the following ten step process: (a) Needs for instruction; (b) Goal of instruction translated into framework for a curriculum; (c) Objectives of course are achieved through learning; (d) Identification of target objectives and the enabling objectives; (e) Planning of sequences of instruction; (f) Delineation of precisely defined objectives - performance objectives; (g) Detailed planning of instruction for lesson; (h) Procedures for assessment of what students have learned; (i) Design lesson and courses with their accompanying techniques of assessing learning outcomes; and (j) Evaluation of the design effort itself.

The Systematic Design of Instruction (Dick & Carey, 1990). This model was suitable for the development of an instruction and a training program. It consisted of 10 steps or processes:

- (1) Identify an Instructional Goal - determine what students would be able to do when they have completed instruction;
- (2) Conduct an Instructional Analysis - determine what type of learning is required of the students;
- (3) Identify entry behaviors and Characteristics - Identification of specific skills that students must have prior to beginning instruction;
- (4) Write performance Objectives - specific statements of what it is the learners will be able to do when the instruction is complete;
- (5) Develop Criterion-referenced test items - develop assessment items, that are parallel to and measure the learner's ability to achieve the objectives;
- (6) Develop Instructional Strategy - identify the strategy that you will use in your instruction to achieve the terminal objectives;
- (7) Develop and/or select instruction - using instructional strategy to develop instructional materials;
- (8) Design and Conduct the formative evaluation - a series of evaluation is conducted to collect data that are used to identify how to improve it;
- (9) Revise instruction - re-examine instruction and materials; and
- (10) Conduct summative evaluation - evaluation of absolute and/or relative worth/value of instruction. (p. 5-7)

Systematic Program Planning Framework (Cyril Houle, 1972). This model was suitable for the development of an adult training program. It consisted of seven processes:

- (1) A possible educational activity is identified - this activity is a response to perceived needs;
- (2) A decision is made to proceed - the feasibility and practicality of conducting the educational activity is assessed;
- (3) Objectives are identified and refined - the objectives express the results desired from planned learning experiences;
- (4) A suitable format is designed - the program components should constitute a coherent whole;
- (5) The format is fitted into the larger pattern of participants' lives - participants have more to do than immerse themselves in the program;
- (6) The plan is implemented - program planners must orchestrate participants and other stakeholders' effort; and
- (7) The results are measured and appraised - to determine improvements to be made.(p.27)

As a summary, instructional design or instructional system design models were developed to help educators or trainers to efficiently and effectively deliver their classes. Educators in distance classes as well as the traditional classes used instructional design for the development of specific or general instructions, program developments, or institutional system developments despite the criticism of using ISD for course development. Ironically, all the ISD models explained in this chapter were developed for rigid and step-by-step teaching and learning strategies, but they were widely used in new forms of distance education which utilized facilitation, contextualized, distributed learning, and situated learning approaches.

Guides to Develop Online Courses

There was not a great deal of literature that suggested planning and development processes for the development of online courses. Most of the existing online courses were developed using the ID models (Seels & Glasgow, 1998). However, several authors and distance education companies had laid out certain forms of steps or guidelines that would be useful to develop online courses.

Distance Course Development Planning Process (Simmons et al., 2000)

Simmons et al. (2000) did not claim in any part of their work that they had developed a planning strategy for distance classes development. However, the steps and the components addressed in their work were a sound distance course planning process.

The planning guide consisted of a detailed process of identifying certain issues pertaining to the development of distance courses. The planning process were summarized as the following:

Step One: Who are the learners? It investigates “the learners background, characteristics, or unusual needs that may require or benefit from specialized instruction” (p. 116). Included in this step were: (i) analyzing the general abilities of the class - cognitive abilities, prerequisite knowledge and skills, and learning styles; (ii) analyze potential for learner interactivity - emphasis on values and services could be offered; (iii) understand learner characteristic - cultural background, interest, educational levels, familiarity with technologies, and how they would apply the knowledge;

Step Two: What is the essential content? It investigates (i) “the nature of content as well as the sequence of information” (p. 118); and (ii) “to match the content of the subjects to the needs of the learners.” (p.119);

Step Three: What teaching strategies and media should be used? To determine mode of presentation, style of instruction delivery, to match one’s philosophy with the strategy used. Specific elements addressed were: (i) media selection and practical consideration and criteria; and (ii) visualizing information - relevancy of materials, accessibility, and copyright issues;

Steps Four: What is learning environment? It investigates the comfortability of using technology and venue. Specific elements were also addressed: (i) technology - basic operation, relevancy, supplementary equipment, hardware and software, and accessibility; and (ii) resources - availability, and quality; and

Step Five: How do you determine the quality of the instructions? It investigates the aspects of assessment and evaluations, type of assessments methods and methods of improvement. (p. 116-121)

The V-Model (Hsu, Marques, Hamza, Alhalabi, 1999)

This planning process was developed to provide a guideline to the whole process of conceiving, planning, designing, implementing, and maintaining web-based instructions. The V-model consisted of 10 steps that involved a sequential and linear

planning process. In each step, guiding questions were posed to collect additional data for the planning process. A brief description of the V-model follows:

Step One: Assess the needs and the necessary conditions. “To assure the existence of a need for the proposed virtual classroom and the basic infrastructure to develop it” (p.98). The guiding questions were: (a) Are there remote students for that course? (b) Will they be able to access the course site and perform all the necessary interactions? and (c) Is there institutional support and interest? Are there administrative policies and procedures for these cases?;

Step Two: Estimate the development cost, effort, and implication. “To reach a clear, accurate, quantitative estimate of the overall cost of developing the virtual classroom” (p.98). The guiding questions were: (a) How long is it going to take to develop the virtual classroom? (b) What technological tools will be needed? How much will they cost? What types of equipment will they require? (c) How many people with which specific skills will be needed? (d) How much will the development impact the instructor’s workload? (e) How much will it impact the teaching methods used so far? (f) What are the institution’s Web publishing and Internet access policies? (g) How much of the total content is already available in electronic format? (h) What will be the software/hardware requirements for the client (student) machine? and (i) What will be the software/hardware requirements for the server machine?;

Step Three: Plan the virtual classroom. “To look more closely at the project from an educational perspective” (p. 102). The guiding questions were: (a) What are the educational goals? (b) How will these goals be accomplished? (c) Which goals will possibly not be accomplished and how can we compensate for them? and (d) What approaches could be used to achieve a given goal? Which of them is more viable?;

Step Four: Design the virtual classroom. “To start the actual designing process” (p.102). The guiding questions were: (a) How will the (may be thousands of) HTML pages be structured? (b) Can we provide a consistent “look-and-feel” for the Web pages? (c) What should be the layout for a typical course page? and (d) How fancy should the pages be? What is the related hardware/software/technology impact?;

Steps Five: Prepare and distribute contents. The guiding questions were: (a) What authoring tools should be used? (b) How to import, create and edit images? (c) How to import, create, and edit sounds? (d) How to import, create, and edit graphics and animation? (e) How to import, create, and edit videos? and (f) Where will the Web pages be hosted?;

Step Six: Enable communication. To investigate the essential types of communication format. The guiding questions were: (a) What form of communication? and (b) What communication tools should be used?;

Step Seven: Implement online student assessment methods. To “address the problem of assessing student performance in the virtual classroom environment. The guiding questions were: (a) Should the virtual classroom contain quizzes? (b) What about online assignments? (c) Should we provide some kind of student evaluation? (d) How are tests implemented online? (e) What about cheating? and (f) How will assignments, test, etc. be submitted, graded, and returned to students?;

Steps Eight: Implement class management procedures. To “ensure that a classroom operates efficiently” (p.106). The guiding question was: What types of class management information are relevant?;

Steps Nine: Set up the system. To investigate “issues involved in setting up the system and making the virtual classroom available” (p.108). The guiding questions were: (a) Which hardware and software components are necessary? and (b) What is needed to install, configure, and protect the virtual classroom contents?; and

Step Ten: Maintain and update the virtual classroom. The guiding questions were: (a) What are the media, software, and policies for backup? (b) What about software and hardware upgrades and maintenance? and (c) Should the site contents and links also be maintained on a regular basis? (p.98-104)

In summary, these two guidelines depicted the steps needed to design, develop, and implement online or distance courses. It was evident, there were some issues in the planning processes that were covered by both guidelines. While in some steps, both guidelines appeared to complement each other’s weakness. As examples: (a) the V-Model (1999) did not cover the instructional strategy of an online class; (b) the V-Model did not address pedagogical elements of an online class; and (c) the Simmon et al. Strategy (2000) lacked of implementation strategy that was covered by the V-Model (1999). In general these two models lack of coverage on factors such as: (a) a guide to decision making - whether a course should be delivered online or not, or should a course

be delivered completely or partially online; (b) the interaction among students, instructors, and delivery technology in the course development.

Strategic Planning

Peter Drucker (1974) said “The best structure will not guarantee results and performances. But the wrong structure is a guarantee of non performance” (cited in Migliore, 1990, p. 24). This statement implied that strategy was vital to the success of a plan (Bobrow, 1998). Therefore, the development of a good strategy was equally important as the development of a plan itself (Pfeffer, 1991).

What is a strategy? Bobrow (1998) defined strategy as “the action decided based on the plan to achieve the desired goal” (p. 60). Mintzberg and Quin (1996) had a broader definition of a strategy - “a pattern or plan that integrates an organization’s major goals, policies, and action sequences into a cohesive whole” (p. 21). Mintzberg and Quinn (1996) also stated, a well-formulated strategy helped to marshal and allocate resources into a unique and viable way to achieve goals (e.g. personal or organizational). The term “strategy” would have different emphases when used in different contexts. Mintzberg and Quinn (1996) suggested the term strategy should be used as the following: (a) Strategy is a plan -some sort of consciously intended course of action, a guideline to deal with situation; (b) Strategy is a pattern - specifically, a pattern in a stream of action; and (c) strategy is a perspective- its content consisting not just of a chosen position, but of an ingrained way of perceiving the world. Conversely, Porter (1997) argued that the term

strategy had different dimensions depending on its emphasis. Porter's dimensions of strategy were defined based on context, contents, and process as the following:

First, the strategy context dimension, which deals with the questions of how the internal and external context (i.e. the industry, region, nation, and others) of firms influence strategy; second, the strategy content dimension, or the "what" of strategy, which refers to strategy as a specific "product" such as an acquisition to enhance existing competencies; and third, the strategy process dimension, or the "how" of strategy, which deals with the organizational process used in arriving at a certain strategy. (p. 50)

Both definitions and uses of the term "strategy" were equally contributed to the understanding of the knowledge of strategic planning and strategy formulation (Mintzberg & Quinn, 1996; Porter, 1997).

Strategy Development

In its simplest form, Mintzberg and Quinn (1996) wrote strategy development was to ask yourself "How and where am I going to commit my resources? Your answer will be your strategy" (p. 23). However in reality, it involved more complex procedures, efforts, and resources. Koch (1997) suggested, the "best method to develop a strategy was to use Delphi technique, because of its' ability to reach a diverse set of people to reach consensus" (p. 9). Mintzberg and Quinn (1996) proposed that, an effective strategy should: (a) consist of three essential elements - goal to be achieved, guiding or limiting actions, and major action sequences; (b) be developed around key concepts and gave cohesion, balance, and forces; (c) deal with both unpredictable and unknowable; and (d) must be more or less complete in itself.

There were many types of strategies and strategic planning models or procedures (Pfeffer, 1991). Some of the strategies or strategic planning models were simple and the other involved complex processes, however, the general or basic elements included in every strategy were the same (Porter, 1997). The following were a few examples of strategic planning models or procedures.

Koch's Strategic Procedure (Koch, 1997). This approach was a simple process of determining a strategy. The process was as following: (a) clearly stated questions to answer the critical issues; (b) construction of hypotheses on the critical issues; (c) identifying the ideal way to solve the critical issue; (d) identifying members of the planning strategy process; and (e) discussion to reach consensus on the strategy.

Mingliore's Strategic Planning (Mingliore, 1990). This model consisted of 10 steps and each step was divided into several sub-steps to address issues of the strategy development. The steps of this strategic planning model were as the following: (a) determine the purpose, (b) conduct environmental analysis, (c) identify the strengths and weaknesses - usually internal, (d) make assumptions, (e) develop goals and objectives, (f) develop strategies - two or three strategies per objectives, (g) identify concurrent issues/problems, (h) conduct analysis, (i) identify and determine alternative solution, and (j) decide recommended courses of action.

The 4-Phase Strategic Planning Process for Training (Svenson & Rinderer, 1992). This strategy was specially designed for the development of training. It consisted of four

steps and each step was followed-up with sub-steps. The process of this strategy was as the following:

Step One: Strategic vision and goals - It addressed the issues of (i) assessment of the existing training system, (ii) cost of training and return on investment, (iii) mission and philosophy of training, and (iv) strategic vision and goals.

Step Two: Alternatives Strategies and Resources Requirements - It addressed the issues of (i) quantitative needs forecast, (ii) alternative strategies for meeting needs, and (iii) resource requirements for alternative scenarios.

Step Three: Organization, Management, and Administration Strategies - It addressed the issues of (i) organization structure, (ii) advisory and governance structure, (iii) results measurement plan, (iv) financing and financial accountability, and (v) supervisor/manager support system.

Step Four: Implementation Plan - It addressed the issues of (i) implementation activities, (ii) accountability, (iii) time limes, (iv) resource requirements, (v) expected barriers and strategies for overcoming them. (p.44)

A strategy was deemed needed in the process of achieving personal or organizational goal(s). In the development of a strategy, usually the most important step or process was to plan the strategy itself. Many scholars and practitioners developed various types of strategies or strategic planning to meet the need of a specific setting.

Decision Making

In the complex and ill-defined real world, making a decision was difficult (Raiffa, 1994). Making a decision would be even more difficult when it involved uncertainty, risk, and to serve multiple objectives (Golub, 1997; Goodwin & Wright, 1993). However, a decision has to be made because of the awareness of dissatisfaction with the way things were, to seek better alternatives, and to control one's environment (Fishburn, 1996).

A decision was often considered successful if the “action made in response to the decision making help bring about a desired future or outcomes” (Fishburn, 1996, p. 20).

Also Fishburn (1996) defined decision as

“a deliberate act of selection, by the mind, of an alternative from a set of competing alternatives in the hope, expectation, or belief that the actions envisioned in carrying out the selected alternatives will accomplish certain goals” (p. 21)

Making Decisions

Scholars in the decisions making theory believed that, people made a decision based on certain theoretical foundations. Many efforts had been made to investigate this phenomenon, but due to the complexity of interactions of humans with factors influencing their lives (e.g. culture, economy, education, knowledge, skills and other), none of the decision making theories could claim to be any better than the other (Ungson & Brainstein, 1982). However, scholars in decision making theory were able to understand why people made a certain type of decision. As an example, March and Shapiro (1982) outlined five elements as the foundation of their framework to interpret and understand how people made choices:

- (1) Anticipatory choice - individuals acting on the basis of some conception of the future consequences of present action for preferences currently help;
- (2) Conflict - un-reconciled preferences, expectation, and beliefs, and yet, decision are made;
- (3) Learning - current behavior can be seen as reflecting the lesson of the past;
- (4) Rules of roles - the immediate criterion of action is the appropriateness of a particular rule to a particular situation, not its' anticipated consequences for current tastes; and
- (5) Disorderly action - encompasses: action to making choices in a way consistent with expectation, desire, or experience - may become dominated by confusion in which it occurs. (p. 92-115)

Making a decision involved doing the right thing and doing it the right way. When a decision was made based on intuition - which was less reliable, people often under or over emphasized certain pieces of information (Rios, 1994). This happened because, the decision made to solve personal problems was based on a non-rational approach (Golub, 1997). Clearly understanding the issues and the complexity of the processes involved in making a decision, scholars (Golub, 1997; Janis, 1989, Weiss, 1985) suggested several strategies to make a good decision.

Weiss (1985) argued that, there was no one best way to make a decision. Conscious as well as unconscious factors influenced many decisions, and decisions made on the basis of logic alone might be faulty. Drawing from these hypotheses, Weiss developed a simple five step decision making strategy: (a) be aware of the factors that should be considered; (b) recognize the true problem; (c) search for an analysis of available alternatives; (d) select the best alternatives; and (e) the decision is accepted by the organization. Weiss (1985) however admitted that, the strategy might not be broad enough to address the complexity of making a decision in a bigger organization.

Golub (1997) suggested several steps on how to make a good decision. Among the steps that were generally acceptable for a personal level of decision making were: (a) identification and definition of problems; (b) identification of alternatives that would provide reasonable responses; (c) forecasting what the future would be, (d) comparing the alternatives and the forecasts; and (e) selecting alternatives that address the most objectives.

Janis (1989) cautioned that even the most effective decision making strategy was not perfect, but the engagement of specific pattern/behavior in making a decision would

lead to perfection in making decisions. Janis (1989) outlined seven steps to the decision making process: (a) survey a wide range of objectives and taking account of a multiplicity of values; (b) consider a wide range of alternative courses of action, (c) intensively search for new information; (d) correctly assimilate and take account of new information; (e) reconsider positive and negative consequences; (f) carefully examine the costs and risks, and (g) make detailed provisions for implementing and monitoring the chosen course of action. Golub (1997) concluded “ the foundation of rational decision making is the ability of human beings to look objectively at a problem and use logic to deduce the ‘best’ course of action” (p.20).

Decision Making Models

A decisions making theorist, Byrnes (1994) argued that there were four decisions making theories that were usually considered as the references for the development of decisions making. The first theory was the Expected Utility Model. This model was designed to specify what one should do in a particular context. However, it failed to identify what people actually wanted to do. There were two basic issues of the decisions making process in this model: (a) “expectation is a belief about the likelihood of some outcome, and a value is a judgment about the desirability of that outcome”(p. 9), and (b) it can only be applied after a set of options was fully developed. Byrnes (1994) also commented that, this theory was contextualized in its orientation and adopted a multi-context perspective (i.e. it takes present and future context into accounts).

The second theory was the Prospect Theory. This theory was designed to predict and explain what people actually do when faced with certain choices. It encompassed the following three phenomena (certainty effect, the reflection effect, and the isolation effect) and Byrnes (1990) explained these three phenomena as the following: (a) the certainty effect - “is the tendency to prefer a sure thing over a risky outcome of equal expected value” (p.12); (b) the isolation effect - “the tendency to disregard common elements of option pairs and focus on elements that differentiate options” (p. 13); and (c) the evaluation effect - “ the decision maker is hypothesized to evaluate the edited option and choose the one with the highest value” (p. 13).

The third theory was the Social Judgment Theory. The primary goal of this theory was to create “cognitive aids for human judgment in the effort to formulate social policy and who will ordinarily find themselves embroiled in bitter disputes as they do so” (p.15). This theory was based on the premise that “there is causal structure to events in the world that adaptive individuals need to comprehend” (P. 15). Byrnes (1994) stated, this theory used a person’s own history of choices to create a regression equation for that person and mainly focused on future context. Finally, the fourth theory was the Constraints Model. This theory was based on the idea that (i) “the quality of a decision making can be arrayed along a continuum ranging from poor to perfect, and (ii) to specify what one should do in a particular context” (p. 20). On this theory Byrnes (1994) commented that the best option would be identified if one considered all possible options, imagined all possible consequences, and used normative decision rules to rank the options.

In summary, people make decisions (e.g. simple or complex) when seeking new alternative(s). Scholars in the field of decision making field developed several strategies

and theories to guide people's understanding of what constituted the decision making process. However, making decisions was not easy and simple because it involved many factors that might influence the decision.

Summary

This chapter was advocated to provide a better understanding of the factors and issues involved in the planning for online course development. Eleven topics were selected for this chapter and were relevant to the study. Some of the topics were further elaborated by subdividing them into sub-topics. Opposing views and perspectives were also included in the literature. This was purposely orchestrated to provide a broader understanding of the subject matters.

The definitions of distance education were varied according to the contexts and times. Many theorists provided some forms of guidelines, framework, and hypotheses on what should constitute distance education. Their theories were important to clearly understand the defining line between distance education and the traditional education. Although there was some disagreement among these scholars - on certain issues of distance education, they believed distance education could promote effective teaching and learning, provided it was properly planned, developed, and implemented.

Many studies proved that, students' learning achievements were increased in distance classes, but in some instances the learning achievements were also decreased. The earlier studies showed, distance classes contributed to the decrease of the students learning achievement. However, the more recent studies indicated that, distance classes

were able to increase students' achievement. Many distance practitioners believed, these opposing findings were dependent on the sophistication of the instructional formats, technologies, as well as, teaching approaches.

Planning and developing instruction were always major issues in distance education. Distance educators who advocated to the use of systematic approach of planning instructions saw its usefulness. However, those who opposed to the use of the systematic approach of planning instruction argued about its' ability to promote "reflection" and "real-world context" during its implementation. Although, the advocates of the systematic approach agreed with some of the comments, they contended, the utilization of the systematic approach for planning instructions had many advantages to promote effective instruction.

Making a good planning decision was always a challenge. It was especially challenging when the decision to be made involved several factors. In the context of a development of distance courses, where institutions, administrators, faculty, and students have to be considered, making a correct and viable decision was crucial. Theorists and practitioners in this field suggested several strategies that were useful for making a good decision – personal, professional, and organizational.

In conclusion, it was obvious from the literature that: (a) distance education was still in its infancy stage; (b) advancement of distance education technologies had contributed to the sophistication of teaching and learning at a distance; (c) systematic approaches of planning distance instruction were important; (d) correct decision making was vital to the success of a distance class; (e) and there was a lack of empirically planning guidelines to connect the strategic planning process, educational system

planning, and instructional designing. The current approaches of developing online courses are implemented without considering the transitional elements/aspects that “connect” the institutional or system planning to the instructional planning. In identifying the “missing link” the researcher hoped, the outcome of this study would contribute to the improvement of the planning for the development of online courses.

CHAPTER III

METHODOLOGY

The purpose of this study was to develop a scholarly planning strategy for the development of an online course that could be used by the faculty of the Workforce Teacher Education (WTE) programs. These programs were offered at University Council for Workforce and Human Resources Education (UCWHRE) institutions in the United States of America. This chapter is devoted to explain the instrument, data collection, and data analysis

Overview

This study involved faculty who have delivered distance learning in the WTE programs at UCWHRE institutions. A survey method that was fashioned from a Delphi technique was used as the method of data collection because Delphi allowed informal intuitive judgment, anonymous response, controlled feedback, and statistical group response (Weatherman & Swenson, 1974). Also, Delphi permitted multiple surveys and the data collection that could be conducted at a distance (e.g., e-mail and U.S Postal service).

Faculty who agreed to participate in this study were grouped into three different panels – Reviewing Panel, Validation Panel, and Delphi Panel. Each individual group had specific tasks: the Reviewing Panel was involved in the first three rounds of the

survey to analyze, synthesize, and review the survey materials; the Validation Panel was involved in the first three rounds of surveys to validate the instrument; and the Delphi panel was assigned to respond to all four rounds of Delphi surveys.

In the first round, the Delphi Panel was asked to provide the elements for the strategy when developing online courses. In the second round, the panel was asked to review the elements generated from the first round survey. The panel members were also asked to propose factors to be considered for each of the elements. In the third round, the panel was asked to rank the elements and factors that were collected in the first two rounds. Finally, the fourth round survey was conducted to confirm the ranks of the elements and factors of the strategy.

Kendall's Coefficient of Concordance and Chi Square were the statistical analysis tools for the study. Kendall's Coefficient of Concordance was used to analyze the rankings made by the respondents. The Chi Square was used to determine that the rankings made by the Delphi Panel were not related to each other. The outcomes of the analysis were interpreted and transformed into the required strategy for online course development.

Sample

The participants of this study were nominated by their school head, program coordinator, or department head from the UCWHRE institutions that offered Workforce Teacher Education programs. The nominators were asked to nominate the participants based on the following criteria: (a) participants must be familiar with both distance

learning and traditional face-to-face delivery; (b) participants must be teaching in Workforce Teacher Education program; and (c) participants' involvement in distance learning were voluntary - not mandated by school or college.

Eighteen (18) nominators from UCWHRE institutions were contacted, but only 11 nominators responded and provided 64 nominees. The lists were the primary source used by the researcher to solicit participants for the study. Forty nine (49) nominees agreed to participate in the study and were selected as the participants for the Delphi. This number exceeded the maximum number of 30 participants as suggested by Zemke (1982) for a Delphi study. Also, these 49 participants were included in the study for the following reasons: (a) Delphi studies take a long time to complete, therefore, respondent withdrawal should be expected; (b) the Delphi process requires at least two surveys as a minimum (Zemke, 1982), but in this study four surveys were conducted; (c) random selection of participants was not administered because the Delphi method relies on expert opinions and/or suggestions -knowledge, experience, talents, and intuitions (Masini, 1993); (d) participants from various backgrounds (i.e. seniority, titles, distance classes experiences, traditional classes experiences, and others) were included in this study to enrich the collected data (Wicklein & Rojewski, 1999); and (e) some of the participants were needed as Reviewing Panel and Validation Panel members.

Delphi Experts

The researcher decided to develop three different groups of panels that were selected from the nominees who agreed to participate in the study. These groups were

formed because of: (a) the challenges of conducting a Delphi study and the lack of experience of the researcher; (b) making sure adequate review and feedback were received on the development of the survey materials; and (c) assuring that a reviewing and validating process of the survey materials was conducted by individuals who came from the same sample (Conserva, 1980).

Reviewing Panel

The Reviewing Panel was mainly responsible for suggestions and helping the researcher in the development of survey materials. Their tasks included analyzing and reviewing the responses from the Delphi Panel on the first three rounds. The Reviewing Panel was also expected to provide various perspectives in guiding the researcher with the development of survey materials. The Reviewing Panel members were selected based on: (a) their experience on Delphi studies and other research processes; (b) their willingness to be involved as the Reviewing Panel; (c) their ability to be contacted easily; and (d) their experience with non-parametric statistical tools. Two participants were invited to be in this group via e-mail, and/or phone and/or face-to-face, and they agreed to serve as the Reviewing Panel.

Validation Panel

Validation Panel members were responsible to validate the instruments for the study. Their primary tasks were analyzing, evaluating, reviewing, and improving the first

three rounds of Delphi survey questions with regard to the clarity, conciseness, implications, and relevancy of the questions and scripts to the purpose of the study (Mortensen & Holmes, 1983).

Three participants were invited to be in this group via the e-mail system, and/or phone and/or face-to-face, and they agreed to serve as the Validation Panel members. The selection of the group members were mainly based on: (a) their experience in Delphi research; (b) their ability to be contacted easily and frequently in the first two rounds of the survey; (c) their resemblance to the Delphi Panel of the study (Conserva Inc., 1980).

Delphi Panel

Delphi Respondents were the participants of the study who gave their opinions and suggestions based on their experience, knowledge, talents, intuitions, and skills (Masini, 1993). They were involved in all four rounds of this study. Based on their diverse backgrounds, different opinions and suggestions were expected from them in responding to the survey. Forty four (44) participants were selected by the researcher to be in this group.

Instrument, Data Collection and Analysis

Delphi is known to be a very successful tool when used as an intragroup communication device in educational settings (Kauffman, 1976). In order for a Delphi method to be properly utilized as a research tool, Weatherman and Swenson (1974) laid

out four conditions of a study where this method was suitable to be applied: (a) forecasting probe - to forecast the future; (b) strategy probe - to develop a strategy; (c) preference probe - to make a decision based on preference; and (d) perceptions detector - to determine contemporary values of the current situations.

Despite Delphi advantages, for example its ability to be utilized at distance and allowance for collecting subjective data from a group expert, it has some limitations such as; (a) the quality of the results depends on the clarity and quality of the survey questions; (b) the value of the results depends on the subjective opinions of the participants; and (c) the participants' inability to accept different ideas (Phi Delta Kappa, 1984). However, these limitations could be minimized if the methods were appropriately implemented such as: (a) instrument was pilot tested; (b) all respondents were provided equal opportunity to express opinions; and (c) respondents were kept anonymous throughout the data collection process (Masini, 1993).

Limited by time and financial resources, the researcher selected a Four Phase Delphi Technique (Linstone & Turoff, 1975) for this study. This approach involved the processes of: (a) participants contribution - initial questionnaire requests a list of contents; (b) understanding contents - review and rate the contents; (c) evaluating contents - review consensus rating of the contents; and (d) final consideration - review updated consensus and make final revisions. Regarding the implementation of Delphi, Whaley's (1995) ten process steps were used.

- 1) Select a team of experts to develop, analyze, and monitor the Delphi;
- 2) Choose Delphi Panel experts in the area of investigation;
- 3) Develop the first round Delphi survey which allows for general responses in the area of the study;
- 4) Test the survey material for clarity and ability to provide appropriate answer;
- 5) Send the first round survey to the Delphi Panel;

- 6) Analyze the first round responses;
- 7) Prepare second/next round survey material that was based on the analysis of the first/preceding round responses;
- 8) Send the second/next round survey to the Delphi Panel;
- 9) Analyze the second/next round responses. Repeat steps seven and eight as needed); and
- 10) Prepare report of the findings (p.24)

Approval and Solicitation Documents

This research project was conducted immediately after the Institutional Review Board of Oklahoma State University approved the research proposal on October 11, 1999 (Appendix A). An e-mail request message (Appendix B) was sent through e-mail to nominators from UCWHRE institutions (Appendix C) to provide potential nominees for the study. All nominees with e-mail addresses were invited to be a part of the project with an e-mail message (Appendix D). The nominees who agreed to participate were immediately mailed with Consent Form (Appendix E) and Round One survey material (Appendix F). The nominees without e-mail addresses were invited through U.S. Postal service (Appendix G) and enclosed together with the mail were the Consent Form and Round One survey material.

Survey Material and Conducting Delphi

Realizing the strengths and limitations of the Delphi method, this study was found to be best conducted using the modified Delphi approach that was fashioned from Wicklein and Rojewski (1999) and Farmer (1997) studies. In their Delphi methods,

contents were listed in the first round survey in order to help the respondents with initial information of the study. By doing this, the responses would be within the context of the area being studied. Five studies that utilized different Delphi approaches (Custer, 1996; Godsey, 1992; Farmer, 1997; Henriques, 1999; Wicklein & Rojewski, 1999) were used as the main guideline for the survey materials development.

In the first round, the draft survey material was developed on the premise of the researcher's experience and knowledge of online courses, literature, and suggestions from the dissertation committee. It was designed and developed by taking into consideration the vastness of the scope of the content to be covered, to avoid unnecessary feedback, and to minimize the negative effects of internal validity. The second, third, and fourth survey materials were developed based on the responses received from the preceding survey rounds. Data collected in the preceding rounds were analyzed, sorted, and synthesized by the researcher before the development of the next round of survey materials (Masini, 1993).

The Reviewing Panel helped the researcher to analyze and review the first three rounds of survey materials. Their suggestions were considered for the development of the draft materials. The improved draft materials were given to the Validation Panel for testing their relevancy and clarity of the script and questions, and the ability of the materials to get the appropriate answers for the study. The researcher used their suggestions to improve and develop the final version of the survey materials. However, in the fourth round survey, the Reviewing and Validation Panels were not involved in the development of the survey material because the survey material for the third round was reused.

There were four common procedures that were applied in all four rounds of Delphi. First, the respondents were contacted through an e-mail system, and electronic copies of survey materials were attached for each survey round. Second, the hardcopies of the survey materials were mailed through the U.S Postal service on the next day after the e-mail was sent out. Third, an e-mail reminder was sent to the unresponsive respondents at the end of the second week after the hard copies were mailed. Fourth, all responses that were received after the fourth week were not processed because of the limited time and financial resources the researcher had for the study. However, in the first round survey, respondents were given eight (8) weeks to provide their responses because the survey was administered at the end of the Fall 1999 semester when faculty were busy and the holiday season was beginning.

Delphi Round One.

Two sets of questions were posed in the first round. The first set of questions was developed to collect the background information of each respondent. They were asked to check the relevant factors that applied to their experience, and/or gave additional information if necessary. The second set of questions consisted of information about the issues of the study and a question that asked the respondents to suggest relevant elements for a planning strategy for the development of online courses. Seven initial elements were listed in the questions as the guiding elements. The respondents were asked to check “agree” or “disagree” on the listed elements and also to provide additional elements if necessary. Appendix H shows the survey materials for this round.

Forty four (44) respondents were given the survey materials and they were divided into two groups. The first group consisted of the respondents with their e-mail and U.S. postal service addresses available. This group consisted of 33 participants. They were contacted via e-mail and U.S. Postal service. The second group consisted of the respondents with only U.S Postal service address available. This group consisted of 11 potential participants and was contacted only through U.S. Postal service.

Thirty three responses were received within eight weeks after the survey materials were sent out. The percentage of returns were higher when compared to Ndahi's (1998) study. The results of the responses were sorted using a matrix format (Appendix K). This approach was used to expedite the analysis process of the suggestions and opinions (Shumaker, 1993). Final analysis on the first round indicated that: (a) the Delphi Panel (respondents) suggested both elements and factors, although they were only asked to give the elements for the strategy; and (b) the suggested elements and factors that addressed the same issues were combined.

Delphi Round Two

Two questions and information about the issues of the study were posed in the second round. The first question asked the respondents to check “agree” or “disagree” on the elements of the strategy. The second question asked the respondents to check “agree” or “disagree” on the factors of the strategy. In both questions, respondents were also allowed to suggest additional elements and factors for consideration. Appendix I shows the survey materials for this round.

The second round survey was given to 44 respondents. The respondents were also placed in two groups. The first group consisted of respondents whose e-mail and U.S. Postal service address were available. The second group consisted of seven (7) respondents who were contacted only through U.S. Postal service and those who did not respond in the first round.

Thirty three (33) returns were received four weeks after the survey materials were sent out. The suggestions from the returns were again sorted using a matrix format. The sorting process was more complex in this round because the suggested factors and elements needed to be combined and re-arranged into/with the existing factors and elements. Moreover, new elements had to be included and more factors had to be matched with each element of the strategy. Final analysis indicated: (a) increased in the number of the elements; (b) increased in the number of factors in each element; (c) the interpretation and scope of each element had to be expanded; (d) adequate information (factors and elements) were collected to develop the strategy; (e) the next surveys were to rank order the elements based on their sequence and importance, and to rank order the factors based on their importance; and (f) a new format of presentation was needed for the survey. Therefore, the third round survey material was designed and developed based on this information.

Delphi Round Three Survey

In the third round, two sets of questions and information about the issues of the study were posed. In the first set of questions the respondents were asked to rank the

elements in the order of sequence and in the order of importance. In the second set of questions, the respondents were asked to rank the factors in the order of importance. In both sets of questions the respondents were asked to rank the elements and factors by assigning numbers to represent the value of their rankings. Number one was valued as the first choice and the biggest number in the list was considered as the last choice. Appendix J shows the survey materials for this round.

Thirty eight (38) respondents were given the survey material. This number included the late respondents in the second round survey, and the unresponsive respondents who asked to be included in the third round survey. The decision to include these respondents in the third round survey was based on their commitment to respond to the first round survey.

Thirty (30) returns were received within three weeks of the survey material being sent out. The suggestions from the responses were sorted using a matrix format that would expedite the computation of means and ranks of the elements and factors. Kendall W and Chi Square were used to determine the relationship of the ranks made by the respondents. Some respondents also suggested the inclusion of the interpretation of each factor to minimize misunderstanding of the terms used, because different institutions used the terms differently.

Delphi Round Four

In the fourth round, three sets of questions and information about the issues of the study were posed. The first set of questions asked the respondents to reconfirm the

ranking of the *elements* on the order of *sequence* and on the order of *importance* from the suggested rank in the third round survey. The second set of questions asked the respondents to reconfirm the ranking of the *factors* on the order of *importance* from the suggested rank in the third round survey. In both sets of questions the respondents were asked to rank the elements and factors by assigning numbers to represent the value of their rankings. Number one was valued as the first choice and the biggest number in the list for each element was considered as the last choice. Three additional questions were also developed in the survey to determine perceptions of the respondents on the role of online courses in the future, and how this study would impact distance learning classes in the Workforce Teacher Education programs at UCWHRE institutions. Appendix K shows the survey material for this round.

Thirty eight (38) respondents were given the fourth round survey material, and they consisted of the late respondents and the unresponsive Delphi respondents in the third round survey. The decision to include these respondents was based on their commitment to respond to the first round survey.

Thirty one (31) returns were received within four weeks of distributing the survey. The result of the returns were sorted using a matrix format that would expedite the computation of means and ranks of the element and factors. Kendall Coefficient of Concordance W and Chi-Square were used to determine the relationship of the ranks made by the respondents.

Kendall Coefficient of Concordance W (Kendall W). The Kendall W was used to determine the degree of association among the experts on Delphi (Godsey, 1992;

Shumaker, 1993). It is a correlated test that is used to determine the level of agreement among judges on a number of issues (Siegel, 1956). Kendall W was used to find the answer "how much do these rank orders tend to agree, or show "concordance?" (Hays, p. 801, 1973). Also, the values of "the concordance coefficient is somewhat hard to interpret directly in terms of the tendency for ranking to agree, but interpretation can be given in terms of the average value for all possible pairs of rank order" (p. 803).

In order to test the significance of the relationship, the Kendall W coefficient had to be converted to a Chi-Square value (Siegel, 1956). Hays (1973) assured that Chi-Square was an accurate test for the hypothesis that there was no actual agreement among judges. However, Seigel (1956) cautioned that Kendall W was applicable only when N - number of contents, is larger than seven, otherwise, the distribution of the Kendall W would fail to approximate the distribution of Chi-Square value.

Chi-Square Test. The Chi-Square tests are "nonparametric statistical tests. They are used with frequency data that have been collected in either one-way or factorial designs" (Shavelson, 1996, p. 550). According to Keys (1997) Chi-Square is

another unique value of nonparametric procedures in that they can be used to treat data which have been measured on nominal (classification) scales. Such data cannot, on any logical basis, be ordered numerically, hence there is no possibility of using parametric statistical tests which require numerical data. With Chi Square, a value is calculated from the data using Chi Square procedures and then compared to a critical value from a Chi Square table with degrees of freedom corresponding to that of the data. (p.184)

As a guide for anyone involved in a nonparametric research, Shavelson (1996) suggested five important characteristics of Chi Square to be considered before using.

- (1) Chi-Square tests are frequently used because behavioral researches often are interested in counting the number of subjects falling into particular categories.

- (2) Chi-Square is used with data in the forms of contents. Thus, Chi-Square can be used with frequency, probability data, and percentages.
- (3) Chi-Square tests reflect the nature of the design in which the frequency data are collected. The independent variable or variables are in the form of discrete categories.
- (4) Chi-Square tests are the data that may be collected in one-way design or in two-way, factorial design. (p.550-552)
- (5) A subject or a subject's response can fall in one and only one cell of the design (Shavelson, 1996, p. 550-552)

Key (1997), however, informed that there were some restrictions regarding the use of Chi Square. Therefore, before anyone decided to use the tool, Key suggested to check data with following assumptions:

- (1) The data must be in frequency form (nominal or ordinal)
- (2) The individual observations must be independent of each other.
- (3) Sample size must be adequate.
- (4) Distribution basis must be decided on before the data is collected.
- (5) The sum of the observed frequencies must equal the sum of the expected frequencies. (p. 132)

In a nut shell, the relationship of the variables is based on (1) if the calculated value of Chi-Square is equal to or greater than the Chi-Square critical value (table value), the null hypothesis is rejected. If the Chi-Square calculated value is less than the critical value (table value) of the Chi-Square, the null hypothesis is accepted.

Summary

This study was conducted to develop a strategy for the development of online courses for Workforce Teacher Education Programs. The faculty who taught in the WTE programs at UCWHRE institutions were the selected participants, and e-mail and U.S. Postal service were used as the primary communication tools.

A total of 18 nominators from the UNCWHRE institutions were invited in the study, however, only 11 nominators responded to the invitation. The 11 nominators suggested 64 potential nominees, and 49 nominees agreed to participate in the study. From this number, two participants were selected as the Reviewing Panel members, three participants as the Validation Panel members, and 44 participants as the Delphi Panel (respondents). On the average, about 33 Delphi respondents were able to provide their responses in a timely manner.

Delphi was used in this study for its ability to collect subjective data from a group of experts and its capability to find consensus on phenomena. In addition, the data that was collected through a Delphi technique could be transformed into numerical values. This allowed Kendall W and Chi Square statistical tools to be used to interpret the data.

Four Delphi surveys were conducted. The first survey asked the respondents to suggest elements for the strategy and to provide information about their teaching background. In the second round, the respondents were asked to suggest elements and factors for the strategy. The third round asked the respondents to rank the elements on the order of sequence and on the order of importance, and ranked the factors on the order of importance. Finally, the fourth round asked the respondents to reconfirm the ranks as suggested in the third round survey. Additional questions were also posed to survey the perception of the respondents about the strategy and online course.

This study was successfully conducted in six months, and the results of the study were transformed to the strategy. Nevertheless, the researcher believed the data collection process would be better implemented if all the Delphi respondents could be given more

time to respond and more detailed information pertaining to each survey element of survey materials could be provided.

CHAPTER IV

RESULTS AND FINDINGS

Faculty of the Workforce Teacher Education (WTE) programs at University Council for Workforce and Human Resources Education (UCWHRE) institutions needed a strategy that could be applied to help them develop online courses. In order to determine what should be the guiding contents of the strategy, a refinement process using a Delphi technique was utilized. The contents (i.e. factors and elements) of this strategy were judged by the Delphi respondents through a series of four surveys.

This chapter presents the results of the Delphi study. The findings of the Delphi surveys are presented in three sections. The first section briefly explains the sample. The second section depicts the results of the first three Delphi survey responses. The third section presents the results of the complete Delphi study.

Research Questions

The following questions were developed to provide direction to the study:

1. What are the *elements* of the model that are identified by distance education faculty in the decision to develop a strategy for the planning of online course development?
2. According to the distance education faculty, what are the *relative ranks of sequence and importance* of these *elements* of the strategy?

3. What are the *factors* of the model that are identified by distance education faculty in the decision to develop a strategy for the planning of online course development?
4. According to the distance education faculty, what are the relative *ranks of importance* of these *factors* of the strategy?
5. Do the distance education faculty have experience utilizing different distance learning tools?
6. Do the distance education faculty of different learning experiences (i.e. number of times conducting distance classes) *rank the elements* of the strategy differently?
7. Do the distance education faculty of different learning experiences (i.e. number of times conducting distance classes) *rank the factors* of the strategy differently?
8. What suggestions do the distance education faculty have on the utility and usability of the proposed strategic model?
9. Based upon the results of the Delphi study and review of the literature, what will be the suggested model of the strategy?

Sample

The data of this study were collected from the faculty in the WTE programs at eleven UCWHRE institutions. The nominators from these institutions suggested 64 nominees, but only 49 nominees agreed to participate in the study. In the first and second round Delphi surveys, the survey materials were sent to 44 faculty. In the third and fourth round surveys, the Delphi survey questionnaires were mailed to 38 faculty and six (6)

respondents were dropped from the study because of their failure to respond in the first two rounds. Table I and Table II depicts the survey process.

TABLE I
PATTERN OF RESPONDENTS IN THE STUDY

Delphi Rounds	Medium	Mailed	Survey Returned			Percent Returns
			On time	Late	Failed	
One	E-mail and U.S mail	33	27	2	4	87.87
	U.S mail only	11	6	3	2	81.81
Two	E-mail and U.S mail	44	33	4	7	84.09
Three	E-mail and U.S mail	38	30	3	5	86.84
Four	E-mail and U.S mail	38	31	2	6	86.84

TABLE II
UCWHRE INSTITUTIONS AND FACULTY PARTICIPATION IN THE STUDY

No	Institutions	Nominees		Delphi Panel	Responded on time			
		Invited	Agreed		R1	R2	R3	R4
1	Univ. of Missouri, Columbia	5	4	3	2	3	2	1
2	Univ. of Idaho	8	8	8	7	6	6	8
3	Univ. of Minnesota	4	2	1	1	1	1	1
4	Univ. of Arkansas	10	8	8	6	6	5	5
5	Louisiana State Univ.	2	2	2	2	1	1	1
6	North Carolina State Univ.	6	6	6	5	4	4	4
7	Colorado State Univ.	5	4	4	1	2	1	1
8	Auburn Univ., Alabama	2	2	2	1	-	-	-
9	Oklahoma State Univ.	6	6	3	3	3	3	3
10	Univ. of Georgia	8	5	5	4	5	5	5
11	Virginia Tech and State Univ.	5	3	2	1	2	2	2
	Total	64	49	44	33	33	30	31

R1, R2, R3, R4: Responses from the surveys on round one through four.

Findings on Delphi Surveys: Round One, Round Two, and Round Three

In the first round survey, 33 respondents including late respondents provided their feedback, and 79 new contents (elements and factors) were generated. The contents that addressed the same issues were combined, and the final contents for this round were two new elements and 43 new factors. Two elements (i.e. Management styles and Learning styles) were removed from the list of elements for the second round survey because they received less than 75 percent of agreement among the respondents. The researcher decided that any elements or factors that received less than 75 percent of agreement among the respondents would be removed from the list. Findings of this round are shown in Appendix L.

In the second round survey, 33 respondents gave their feedback. The respondents accepted all elements and factors listed in the survey questionnaire. Also, 45 additional content areas were generated in this round. The content areas that addressed the same issues were combined and three new elements and 38 new factors were found to be acceptable for the third round. Findings of this round are shown in Appendix M.

In the third round survey, 30 respondents gave their responses. They also suggested minor changes on the format of the fourth round survey presentation in order to reduce confusion and to eliminate bias and effect of internal validity. Taking the suggestions into consideration, improvement was made on the fourth round survey by adding information about each of the elements and factors.

Complete Findings of the Delphi Study

The collected data was used to develop the suggested strategy and to answer the questions of the study.

Question One: What were the *elements* of the model that were identified by distance education faculty to develop a planning strategy for online course development?

The respondents reached consensus agreement on the eight elements of the strategy. In the order of sequence, these elements were listed as the Course Selection, Instructional Strategies, Delivery Technology, Faculty Delivery/Teaching Preferences, Students' Learning Preferences, Technological Skills, Students' Evaluation, and Course/Faculty Evaluation.

Question Two: According to the distance education faculty, what are the *relative ranks (sequence and importance)* of these *elements* of the strategy?

Thirty one respondents ranked three elements on order of sequence differently when compared to the order of importance. In the order of sequence the elements of Delivery technology, Faculty delivery/teaching preferences, and Student Learning Preferences elements were ranked third, fourth, and fifth respectively. Conversely, in the ranking order of importance, two elements (i.e. Students learning preferences and Delivery technology) were ranked third, and Faculty delivery/teaching preferences element was ranked fifth. Table III shows the detailed comparison of the findings.

TABLE III

COMPARISON OF RANKS OF ELEMENTS (SEQUENCE AND IMPORTANCE)

Merit	Elements	Score	Mean	Rank
Sequence	Course Selection	31	1.03	1
	Instructional Strategies	71	2.37	2
	<i>Delivery Technology</i>	85	2.83	3
	<i>Faculty Delivery/Teaching Preferences</i>	122	4.07	4
	<i>Students' Learning Preferences</i>	141	4.70	5
	Technological skills	165	5.50	6
	Students' Evaluation	210	6.67	7
	Course/Faculty Evaluation	237	7.90	8
Importance	Course Selection	35	1.17	1
	Instructional Strategies	74	2.47	2
	<i>Students' Learning Preferences</i>	109	3.63	3
	<i>Delivery Technology</i>	109	3.63	3
	<i>Faculty Delivery/Teaching Preferences</i>	141	4.70	5
	Technological skills	168	5.60	6
	Students' Evaluation	202	6.73	7
	Course/Faculty Evaluation	237	7.90	8

According to Siegel (1956), Kendall's Coefficient of Concordance (Kendall W) could be used to measure the relationship of the ranking and to determine the agreement among judges on three or more variables. Kendall W was capable of providing a standard method of ordering these variables according to consensus, especially when there was no available objective order of the identified variables. However, Siegel (1956) cautioned that a significant value (Kendall W) of agreement among the judges did not insure the identified and ranked variable were correct.

The results of the Kendall W statistic showed that there were strong agreements among the respondents on the rankings of the eight elements in the order of importance (Kendall W value = 0.5643) and in the order of sequence (Kendall W value = 0.333).

The Kendall (W) values were used in the Chi Square to test the null hypotheses of the ranking. These hypotheses were: (a) Ho1: There was no relationship between the individual respondents on the ranks of the *elements* of the strategy in the *order of sequence*; and (b) Ho2: There was no relationship between the individual respondents on the rank of the *elements* of the strategy in the *order of importance*.

The results of the Kendall W statistic ($W = 0.5643$) for the *elements* in order of sequence when computed to a Chi Square value was found to be statistically significant ($X^2 = 41.3377$, $df = 30$, $p < .05$). A Chi Square value equal to or greater than 114.5540 was required to be significance at the .05 level. Therefore, the null hypothesis was rejected.

Also, the results of the Kendall W statistic ($W = 0.333$) for the elements in the order of importance when computed to a Chi Square value was found to be statistically significant ($X^2 = 41.3377$, $df = 30$, $p < .05$). A Chi Square value equal to or greater than 68.9997 was required to be significance at the .05 level. Therefore, the null hypothesis was rejected.

In summary, there were strong relationships among the individual respondents ranking (sequence and importance) as shown by both of the Chi Square values. Therefore, a strategy to develop online courses for WTE programs at UCWHRE institutions could be developed from this data.

Question Three: What are the *factors* of the model that are identified by the distance education faculty in the decision to develop a planning strategy for online course development?

There were 42 factors and 135 sub-factors after the final analysis of the data. These factors and sub-factors were distributed in the eight elements identified for the

strategy. Instructional Strategies element was found to have the most factors (i.e. eight factors and 29 sub-factors). In contrast, the Course/faculty evaluation element had the least number of factors (three factors and nine sub-factors).

Comparison of means for all factors that were ranked as the first (top most) in each element indicated, the distance education faculty showed stronger consensus on some factors. Two factors that received strongest consensus were factor of Support needed (mean = 1.13) in the element of Technological Skills, and factor of Faculty teaching (mean = 1.13) in the element of Course/Faculty Evaluation. Conversely, two factors received weak agreement among the factors that were ranked first (top most), were the Interaction strategy (mean = 1.87) in the element of Instructional Strategies, and the Learner characteristics (mean = 1.70) in the element of Students Learning Preferences. Table IV shows the comparison of the top most factors in each element and Table V displays the final findings of the factors and sub-factors

TABLE IV:
COMPARISON OF MEANS FOR FACTORS THAT
WERE RANKED NUMBER ONE IN EACH ELEMENT.

Elements	Top Most Factor	Means
Course Selection	Goal of the course	1.37
Instructional Strategies	Interaction strategy	1.87
Delivery Technology	Accessibility	1.30
Faculty Delivery/Teaching Preferences	Purpose of teaching	1.47
Students' Learning Preferences	Learner characteristics	1.70
Technological skills	Support needed	1.13
Students' Evaluation	Quality of assessment	1.23
Course/Faculty Evaluation	Faculty teaching	1.13

TABLE V
FACTORS RANKED BASED ON THEIR IMPORTANCE

Elements	Factors	Sub factors	Score	Mean	Rank
Course Selection	Goal of course	Objectives/outcomes/ competencies	41	1.37	1
	Nature of course	Face-to-face/multi-disciplines/ technology involvement or incorporation	76	2.53	2
	Need for the course	Target population/faculty and students proficiency	87	2.90	3
	Content of course	Static/dynamic/academic level/ academic rigor/ course integrity	110	3.67	4
	Learner composition	Level/quantity/motivation/ diversity	146	4.87	5
	Regulatory	required/elective/occupational placement	178	5.93	6
Instructional Strategies	Interaction strategy	Mode – synchronous & asynchronous/level/ frequency/ accessibility/ interactiveness/ learning community	56	1.87	1
	Support needed	Technical/content/administrative /organizational	77	2.57	2
	Communication strategy	Media type/feedback type/ length of class	88	2.93	3
	Learning & Teaching resources	Online/ digital/ mode/electronic links	124	4.13	4
	Scope of assignments	Individual/group/on-going/fixed date	169	5.63	5
	Type of course	Open entry-exit/fixed term	169	5.63	5
	Faculty involvement	Frequency/depth	195	6.50	7
	Off class dialogue	E-mail/web site/bulletin board, streaming video	237	7.90	8

TABLE V CONTINUED

Elements	Factors	Sub factors	Score	Mean	Rank
Delivery Technology	Accessibility	Learner/remote site/ communication	39	1.30	1
	Tools - software & hardware	Scalability/ availability/age/ compatibility	67	2.23	2
	Support needed	Technical/staff/ organizational	81	2.70	3
	Operational cost		114	3.80	4
Faculty Delivery/ Teaching Preferences	Purpose of teaching	Academic rigor/ course integrity/ content determination	44	1.47	1
	Faculty needs and supports	Time/incentives/ workload/ professional development	66	2.20	2
	Faculty characteristics	Attitude/ motivation	94	3.13	3
	Course management	web site/digital content/ planning/feedback	113	3.77	4
	Distance learning knowledge	Faculty training/comfort level	138	6.00	5
Students' Learning Preferences	Learner characteristics	Attitude/maturity/level/ background/motivation	51	1.70	1
	Students' needs	Impaired/academically challenge/excellent/average/ disadvantage	53	1.77	2
	Students' learning style	Visual/auditory/contextualized/ lock-step/individualized	93	3.10	3
	Learner interest or favor	Auditory/visual/text/print	117	3.90	4
	Computer skills	Training/self- acquisition/peer learning	130	4.33	5

TABLE V CONTINUED

Elements	Factors	Sub factors	Score	Mean	Rank
Technological skills	Support needed	Personal/infrastructure/policy	34	1.13	1
	User experience	Teacher/students/support personal	62	2.07	2
	Distance Learning experience	Prerequisite/on-going/one-shot	92	3.06	3
	Personal knowledge acquired	Technology/teaching	120	4.00	4
	Feedback tools utilization	Flexible/various/fixed	150	5.00	5
Students' Evaluation	Quality of assessment	Level/assignments types/accuracy/ validity/reliability	37	1.23	1
	Types/Methods of feedback	Test/presentation/interviews/papers/etc.	70	2.33	2
	Accountability of assessment	Site coordinator or facilitator/continuous monitoring	100	3.33	3
	Interactivity of assignment	Frequency/depth/maturity	124	4.33	4
	Format of assessment	Summative/formative	132	4.40	5
	Ease of management	Navigation/frequency	173	5.77	6
Course/Faculty Evaluation	Faculty teaching	face-to-face versus online/integration of modes	34	1.13	1
	Faculty/course management	weakness/strengths/potential/improvement	59	1.97	2
	Cost-effectiveness	in-state/our-state students/course relevancy	91	3.03	3

Question Four: According to the distance education faculty, what are the relative *ranks of importance* of these *factors* of the strategy?

Out of the 42 factors ranked by the respondents, only two factors were found to be ranked equal. These factors are Scope of assignment and Type of course which are listed under the Instructional strategies element. Both of these factors have means equal to 5.63. Table V shows the details of the factors and sub-factors.

Categorizing the factors in each element into three groups – Important, Moderately Important, and Less Important, showed that some elements have more Important factors when compared to other elements. The grouping was determined by considering the means of any factors that fall between: (a) 0 – 33 percent from the highest mean of each element as to be Important factors; (b) 34 – 66 percent from the highest mean of each element as to be Moderately Important factors, and (c) 67 – 100 percent from the highest mean of each element as to be Less Important factors. Table VI shows the distribution of the factors into the three categories.

TABLE VI
CATEGORY OF FACTORS BASED ON THEIR IMPORTANCE

Element	Factors	Mean	Range	Category
Course Selection	Goal of course	1.37	0-33% (0-1.97)	Important
	Nature of course	2.53	34 – 66% (1.97-3.95)	Moderately Important
	Need for the course	2.90		
	Content of course	3.67		
	Learner composition	4.87	67-100% (3.95-5.93)	Less Important
	Regulatory	5.93		
	Feedback tools utilization	5.00		

TABLE VI CONTINUED

Elements	Factors	Mean	Range	Category
Instructional Strategies	Interaction strategy	1.87	0-33% (0-2.63)	Important
	Support needed	2.57		
	Communication strategy	2.93	34 – 66% (2.64-5.27)	Moderately Important
	Learning & Teaching resources	4.13		
	Scope of assignments	5.63	67-100% (5.28-7.90)	Less Important
	Type of course	5.63		
	Faculty involvement	6.50		
	Off class dialogue	7.90		
Delivery Technology	Accessibility	1.30	0-33% (0-1.27)	Important
	Tools - software & hardware	2.23	0-66% (1.28-2.79)	Moderately Important
	Support needed	2.70		
	Operational cost	3.80	67-100% (2.80-3.80)	Less Important
Faculty Delivery/ Teaching Preferences	Purpose of teaching	1.47	0-33% (0-1.99)	Important
	Faculty needs and supports	2.20	34 – 66% (2.00-3.99)	Moderately Important
	Faculty characteristics	3.13		
	Course management	3.77		
	Distance learning knowledge	6.00	67-100% (4.00-6.00)	Less Important
Students' Learning Preferences	Learner characteristics	1.70	34 – 66% (1.44-2.89)	Moderately Important
	Students' needs	1.77		
	Students' learning style	3.10	67-100% (2.90-4.33)	Less Important
	Learner interest or favor	3.90		
	Computer skills	4.33		
Technological skills	Support needed	1.13	0-33% (0-1.67)	Important
	User experience	2.07	34 – 66% (1.68-3.33)	Moderately Important
	Distance Learning experience	3.06		
	Personal knowledge acquired	4.00	67-100% (3.34-5.00)	Less Important
	Feedback tools utilization	5.00		

TABLE VI CONTINUED

Elements	Factors	Mean	Range	Category
Students' Evaluation	Quality of assessment	1.23	0-33% (0-1.92)	Important
	Types/Methods of feedback	2.33	34 – 66% (1.93-3.85)	Moderately Important
	Accountability of assessment	3.33		
	Interactivity of assignment	4.33	67-100% (3.86-5.77)	Less Important
	Format of assessment	4.40		
	Ease of management	5.77		
Course/ Faculty Evaluation	Faculty teaching	1.13	0-33% (0-1.01)	Important
	Faculty/course management	1.97	34 – 66% (1.02-2.02)	Moderately Important
	Cost-effectiveness	3.03	67-100% (2.03-3.03)	Less Important

In the element of Students Learning Preferences there were no factors found to fall into the category of Important factors. Only the Instructional Strategy element was found to have two (2) factors that fell into the category of Important factors. Also, the Instructional Strategy element was found to have the most factors (total of four) that fell into the category of Less Important factors.

Question Five: Do the distance education faculty have experience utilizing different distance learning tools?

Two questions were posed to the Delphi Panel to answer this issue. Thirty one (31) respondents gave their feedback. From the answers, in general, most of the respondents were familiar with various types of distance learning tools. About 87 percent of the respondents who answer the questions have delivered four or more distance classes.

a) First question: What types of distance learning tools have you used to deliver your distance classes?

Thirty one (31) respondents answered the question. The result showed that 24 respondents had experience using Interactive television and e-mail, and 21 respondents have experience using web-based delivery tools. In contrast, none of the respondents have experience using desktop audio-video conferencing. Also found was: (a) the two most commonly used distance delivery tools were the Interactive television and e-mail; (b) the three moderately utilized distance delivery tools were the Compressed video, Audio conferencing, and Listserv; and (c) the two least commonly used distance delivery tools were the Audio-Video Conferencing and Desktop Audio-Video Conferencing. Details of the findings are shown in Table VII.

TABLE VII
EXPERIENCE OF UTILIZING DISTANCE LEARNING TOOLS

Distance Learning Tools	Raw Score	Percent
Interactive television	24	77.42
E-mail	24	77.42
Web-based	21	67.74
Compressed video	17	54.84
Listserv	13	41.94
Audio conferencing	9	29.03
Audio-Video conferencing	6	19.36
Desktop Audio-Video Conferencing	0	0.00

b) Second question: How many times have the distance education faculty delivered online/distance learning classes (same or different courses)?

A total of thirty three (33) respondents answered the question. The result showed eighteen (18) respondents have delivered four to ten (10) distance classes and six respondents have taught more than 11 distance classes. Four out of five respondents who taught for three years or less have taught between four to ten distance classes. In contrast, eight respondents who have taught for four years or more have only taught three distance classes or less.

The finding also showed: (a) 80 percent (4/5) of the faculty who have taught for three years or less had delivered four or more distance classes; (b) 77.77 percent (7/9) of the faculty who have taught for four to ten (10) years had delivered four or more distance classes; and (c) 68.42 percent (13/19) of the faculty who have taught for 11 years or more have delivered four or more distance classes. Detail result is shown in the Table VIII.

TABLE VIII
DISTANCE TEACHING EXPERIENCE

Teaching Experience (Years)		Distance Classes Teaching Experience			Total
		3 or less	4 to 10	11 or more	
3 years or less		1	4	-	5
4 years or more	4 to 10 years	2	6	1	9
	11 years or more	6	8	5	19
Total		9	18	6	33

Question Six: Do distance education faculty with different teaching experiences (number of times conducting online classes) rank the *elements (i.e. sequence and importance)* of the strategy differently?

The distance education faculty who have delivered three or less distance classes and the faculty who have delivered four or more distance classes ranked the elements in the order sequence the same. However, in the *rank order of importance*, two elements were ranked differently by the two groups. The result showed that Students Learning Preferences and Delivery Technology elements were ranked third and fourth respectively by the faculty who have delivered three or less distance classes. In contrast, the faculty who have delivered four or more distance classes were found to have ranked Students Learning Preferences and Delivery Technology elements fourth and third respectively. Table VII shows the comparison.

TABLE IX

COMPARISON OF RANKING ON THE ORDER OF IMPORTANCE BETWEEN FACULTY OF DIFFERENCE DISTANCE TEACHING EXPERIENCES

Elements	Distance Classes	
	3 or less	4 or more
Course Selection	1	1
Instructional Strategies	2	2
Students Learning Preferences	3	4
Delivery Technology	4	3
Faculty Delivery/Teaching Preferences	5	5
Technological Skills	6	6
Students Evaluation	7	7
Course/Faculty Evaluation	8	8

Question Seven: Do distance education faculty of different learning experiences (i.e. number of times conducting online classes) *rank the factors* of the strategy differently?

Factors in three elements were found to be ranked differently by the faculty who have delivered three or less distance classes and the faculty who have delivered four or more distance classes (Table X). In the Instructional Strategies element, the faculty who have delivered three or less distance classes ranked the Scope of assignment (mean = 6.20), Type of course assignment (mean = 5.20), and Faculty involvement (mean = 6.50) factors as sixth, fifth, and seventh respectively. In contrast, the faculty who have delivered four or more distance classes ranked the Scope of assignment (mean = 5.42) factors as fifth, and Type of course (mean = 6.05) and Faculty involvement (mean = 6.05) factors as sixth (tied).

For the Delivery Technology element, the faculty who have delivered three or less distance classes ranked Tools -software/hardware (mean = 2.10) and Support needed (mean = 3.00) factors as second and third respectively. Conversely, faculty who have taught four or more distance classes ranked both of these factors (mean = 2.37) as second.

Finally, in the Students' Evaluation element, the faculty who have delivered three or less distance classes ranked the Interactivity of assignment (mean = 3.90) and Format of assessment (mean = 5.00) as fourth and fifth respectively. In contrast, the faculty who have delivered four or more distance classes ranked these factors as vice versa (i.e. Interactivity of assignment – mean = 4.16, and Format of assessment - mean = 4.00).

TABLE X

COMPARISON OF RANKS OF FACTORS IN THE ORDER OF IMPORTANCE:
BASED ON THE NUMBER OF DISTANCE CLASSES CONDUCTED

Elements	Factors	Classes Delivered			
		Three or less		Four or more	
		Mean	Rank	Mean	Rank
Course Selection	Goal of course	1.30	1	1.26	1
	Nature of course	2.60	2	2.37	2
	Need for the course	2.90	3	2.58	3
	Content of course	3.50	4	3.16	4
	Learner composition	4.70	5	4.68	5
	Regulatory	6.00	6	5.26	6
Instructional Strategies	Interaction strategy	1.40	1	1.79	1
	Support needed	2.30	2	2.37	2
	Communication strategy	2.90	3	3.12	3
	Learning & Teaching resources	4.10	4	3.78	4
	Scope of assignments	6.20	6	5.42	5
	Type of course	5.20	5	6.05	6
	Faculty involvement	6.50	7	6.05	6
Off class dialogue	7.90	8	7.32	8	
Delivery Technology	Accessibility	1.20	1	1.47	1
	Tools - software & hardware	2.10	2	2.37	2
	Support needed	3.00	3	2.37	2
	Operational cost	3.70	4	3.63	4
Faculty Delivery/ Teaching Preferences	Purpose of teaching	1.00	1	1.53	1
	Faculty needs and supports	2.50	2	2.00	2
	Faculty characteristics	2.90	3	2.95	3
	Course management	3.90	4	3.47	4
	Distance learning knowledge	4.70	5	4.37	5

TABLE X CONTINUED

Elements	Factors	Classes Delivered			
		Three or less		Four or more	
		Mean	Rank	Mean	Rank
Students Learning Preferences	Learner characteristics	1.30	1	1.74	1
	Students' needs	2.00	2	1.84	2
	Students' learning style	3.10	3	3.05	3
	Learner interest or favor	3.80	4	3.68	4
	Computer skills	4.80	5	3.84	5
Technological Skills	Support needed	1.00	1	1.16	1
	User experience	2.10	2	1.89	2
	Distance Learning experience	2.90	3	2.84	3
	Personal knowledge acquired	4.00	4	3.89	4
	Feedback tools utilization	5.00	5	4.79	5
Students Evaluation	Quality of assessment	1.20	1	1.16	1
	Types/Methods of feedback	2.10	2	1.47	2
	Accountability of assessment	3.50	3	3.00	3
	Interactivity of assignment	3.90	4	4.16	5
	Format of assessment	5.00	5	4.00	4
	Ease of management	6.10	6	5.80	6
Course/Faculty Evaluation	Faculty teaching	1.00	1	1.11	1
	Faculty/course management	2.00	2	1.89	2
	Cost-effectiveness	3.00	3	3.00	3

Question Eight: What suggestions do the distance education faculty have on the utility and usefulness of the proposed strategic model?

Three questions were posed to the respondents to answer this issue. In general, respondents showed strong indication that online classes would become the mainstream of future education and this study would affect the faculty in WTE programs in planning and designing distance courses.

(a) First question: What do you think about the possibility of online learning in the future context of Workforce Teacher Education programs in the USA?

Thirty one (31) respondents gave their feedback. About 39 percent of the respondents showed a strong indication that online delivery format will become the mainstream future education. In contrast, about 10 percent indicated this paradigm would be less popular. Details of the findings are shown on Table XI.

TABLE XI
POTENTIAL OF FUTURE ONLINE CLASS FOR WTE PROGRAMS

Answers	Responses	Percent
Becoming a main stream.	12	38.71
Gaining popularity.	15	48.39
Remaining as it is.	1	03.23
Becoming less popular.	3	9.68

(b) Second question: If this study is presented to Workforce Teacher Education programs faculty, do you think the results of this research would have any influence on how they handle their online course/distance learning in the future?

Thirty one respondents gave their feedback. About 90 percent of the respondents indicated that the findings of this study would strongly (19.35 percent) and moderately (70.96 percent) influence their current way of handling online course/distance learning. Details of the findings are shown on Table XII

TABLE XII

IMPACT OF THE STRATEGY ON THE CURRENT DISTANCE
LEARNING CLASSES FOR FACULTY IN WTE PROGRAMS

Answers	Responses	Percent
Very strongly.	0	0
Strongly.	6	19.35
Moderately.	22	70.96
Little.	3	9.77
No effect at all.	0	0

(c) Third question: If this strategy were given to the faculty at WTE programs to develop their online course, what would be impacted most by this strategy?

Thirty one (31) respondents gave their feedback. About 71 percent of the respondents indicated that this study could influence how they handle their planning for online classes. Sixty one percent of the respondents answered that their course design would be influenced by this study. In contrast, only about 19 percent of the respondents showed this study could influence their online class evaluation. Details of the findings are shown on Table XIII

TABLE XIII

INFLUENCE OF THE STRATEGY ON THE ONLINE
CLASSES FOR FACULTY IN WTE PROGRAMS

Answers	Responses	Percent
Planning	22	70.97
Designing	19	61.29
Developing	13	41.94
Implementing	10	32.28
Evaluating	6	19.36

Question Nine: Based upon the results of the Delphi study and the review of literature of this study, what will be the suggested model of the strategy?

The literature of this study revealed that: (a) educational institutions which add new programs or implement new delivery formats used strategic planning to guide them in making decisions; (b) educators who incorporated or utilized technology in their class used systematic instructional approaches to develop their courses; and (c) online educators used certain forms of plans or steps in converting traditional courses into online courses or when developing new online courses.

Based on the results of the study, the sequence of steps for the planning strategy is as the following: Step One - Course Selection; Step Two – Instructional Strategies; Step Three – Delivery Technology; Step Four – Faculty Delivery/Teaching Preferences; Step Five – Students’ Learning Preferences; Step Six– Technological Skills; Step Seven – Students’ Evaluation; and Step Eight – Course/Faculty Evaluation. With regard to the linearity of steps of a model or a strategy, Seels and Glasgow (1998), Smith and Regan (1996) and Dick and Carey (1997) commented, linearity of steps would only occur in a simple planning process. For a complex process of planning such as developing a reflective instruction, flexibility of the steps would dictate the ability, reliability, and effectiveness of a model or a strategy. Taking into consideration both data (i.e. Delphi study and review of literature) a strategy for planning instructional design for online courses was developed as shown in Figure I.

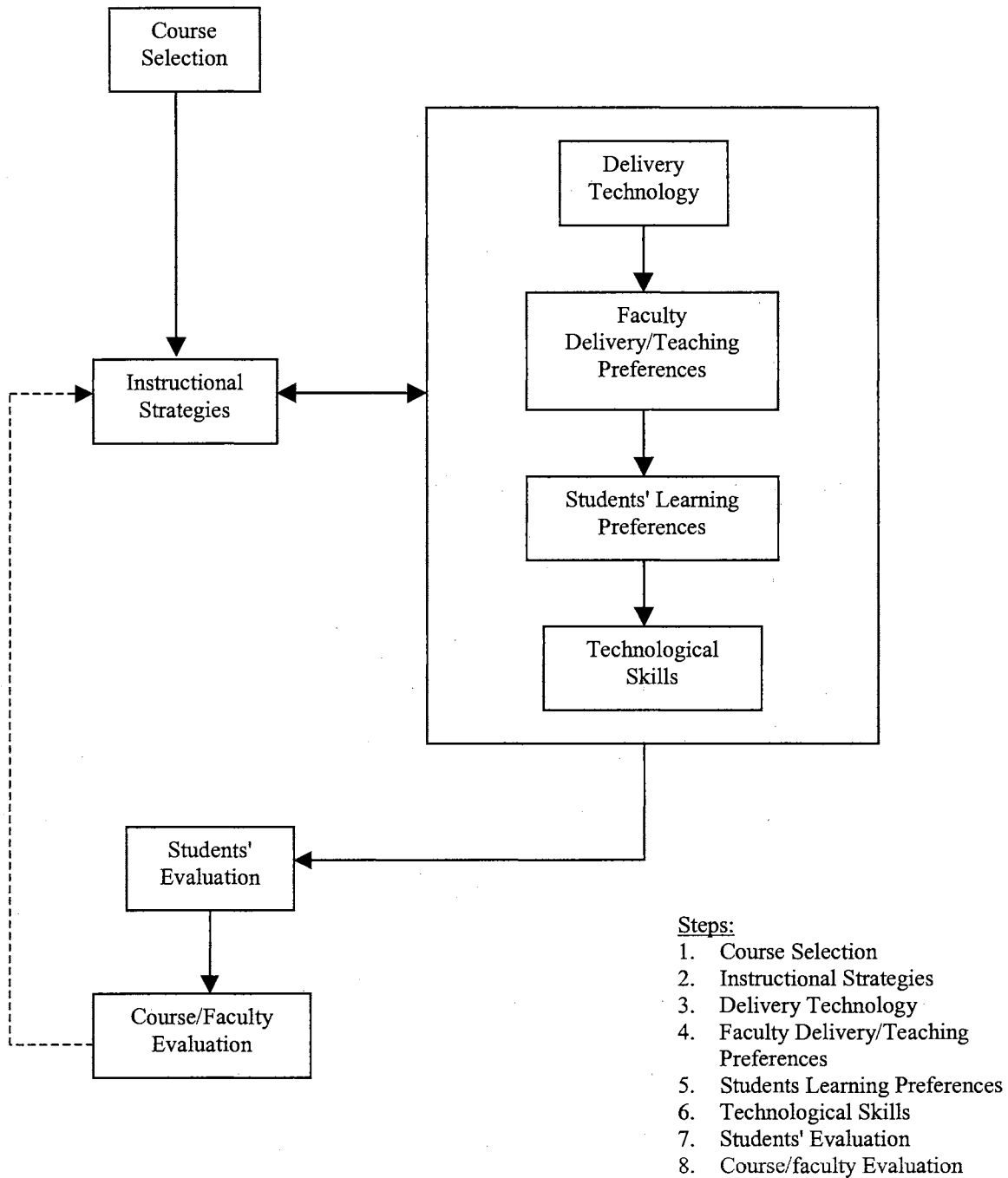


Figure 1. A Planning Strategy for the Development of Online Courses

Summary

Employing the modified Delphi technique, the final analysis of Delphi data generated eight elements, 42 factors, and 135 sub-factors. The elements and factors were used to develop the strategy for planning online courses. The sequence of the steps for the elements were: Course Selection, Instructional Strategies, Delivery Technology, Faculty Delivery/Teaching Preferences, Students Learning Preferences, Technological Skills, Students Evaluation, and Course/Faculty Evaluation. The priority order of the elements based on their rank of importance were: Course Selection, Instructional Strategies, Students Learning Preferences, Delivery Technology, Faculty Delivery/Teaching Preferences, Technological Skills, Students Evaluation, and Course/Faculty Evaluation

The correlation and extent of agreements among the Delphi respondents were determined using Kendall Coefficient of Concordance (Kendall W). In both ranks of sequence and importance of elements, the calculated values of Kendall W showed high relationship among the respondents rankings. Conversion of Kendall W values to Chi Square showed, both of the computed Chi Square values for the ranks of sequence and importance exceeded the critical value of Chi Square. Therefore, the null hypotheses for the sequence and importance of the elements were rejected.

Experienced and less experienced distance education faculty showed differences in their rankings of the elements on the order of importance on two elements – Students Learning Preferences and Delivery technology. The two groups of faculty also showed differences of ranking on three factors in the Instructional Strategies element, two factors in each Delivery Technology and Students Evaluation elements.

Faculty in WTE programs highly agreed that online or distance courses would become one of the mainstream education formats in the future. They also indicated the developed strategy would influence their planning for online or distance courses. Finally, most of the faculty were found to be familiar with some forms of online delivery tools.

The review of literature indicated that there was no empirically developed planning strategy to develop online courses. Therefore, a planning strategy for online course development was developed based on the results of the Delphi study and the review of literature. The strategy is useful for online course planning processes, and converting traditional courses to online or distance courses.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This study involved faculty in Workforce Teacher Education (WTE) programs at University Council for Workforce and Human Resources (UCWHRE) institutions who have delivered distance classes. Using a modified Delphi, the role of the respondents was to identify and rank order the elements and factors for this study. Forty four (44) Delphi Panel (respondents) were involved in the study to generate, identify, and rank the contents of the strategy.

The first Delphi survey sought to generate elements for the strategy and to collect background information of the respondents. The second Delphi survey sought to generate and determine the elements and factors for the strategy. The third and fourth Delphi surveys sought to rank order the elements of the strategy on the order of sequence and priority of importance and to rank the factors on the priority of importance. Optional questions were also posed to the faculty in the fourth round to determine the usefulness of the strategy and to predict the need of online classes in the future context of WTE programs.

As a result of the Delphi responses and review of literature, a model that represented a planning strategy for online courses was developed to accomplish the goals of this study. Nevertheless, due to limited time and financial resources, this model was not field tested, therefore, comprehensive results on the effectiveness of this model were not determined.

Objectives and Questions of the Study

Through four Delphi surveys, this study was able to address five objectives and answer nine questions that were set in the planning stage of this study. The objectives and the questions follow:

1. Determine the *elements* of the strategy and *rank* them in the *order of sequence and importance*: (a) What are the elements of the model that are identified by the distance education faculty in the decision to develop a strategy for online course development? (b) According to the distance education faculty, what relative ranks of sequence and importance do each of these elements of the strategy have?

2. Determine the *factors* of the strategy and *rank order* them according to the *importance*: (a) What are the factors of the model that are identified by the distance education faculty in the decision to develop a strategy for online course development? (b) According to the distance education faculty, what relative rank of importance do each of these factors of the strategy have?

3. Determine if the faculty with different distance teaching experiences (i.e. number of times conducting online classes) would rank the elements and factors differently: (a) Do the distance education faculty have experience utilizing different distance learning tools? (b) Do the distance education faculty of different distance teaching experiences (i.e. number of times conducting distance classes) *rank the elements* of the strategy differently? (c) Do the faculty of different distance teaching experiences (i.e. number of times conducting distance classes) *rank the factors* of the strategy differently?

4. Determine if the planning strategy would be helpful for online course development for the faculty in WTE programs at UCWHRE institutions: What suggestions do distance education faculty have on the utility and usefulness of the proposed strategy?

5. Develop a strategy for online course development for faculty in WTE programs at UCWHRE institutions: Based upon the results of the Delphi study and the review of literature of this study, what would be the suggested model of the planning strategy?

Conclusions and Summary of Findings

The following summary of results was obtained upon completion of the study.

1. The four rounds of Delphi surveys the distance education faculty generated 114 responses for the strategy. The final analysis showed that eight elements, 42 factors, and 135 sub-factors were developed from the responses.

The results led to the following conclusions: (a) a planning strategy could be developed from this data to help WTE faculty plan their online course development; and (b) the data is adequate to develop an interactive instructional design model of a strategy for planning online class development.

2. Faculty of different distance education experiences showed differences in their ranking of the elements between the order of sequence and the order of importance on three elements. For the order of sequence, the elements of Delivery Technology, Faculty Delivery/Teaching Preferences, and Students' Learning Preferences were ranked third, fourth, and fifth respectively. For the order of importance, the elements of Delivery

Technology and Students Learning Preferences were tied as the third rank and the element of Faculty Delivery/Teaching Preferences was ranked fifth. The top two and the bottom three elements of the strategy had similar ranks on both orders (sequence and importance).

The results led to the following conclusions: (a) distance education faculty of various backgrounds have the perception that a systematic planning for an online course does not follow the assumption that the sequence of the elements must be ranked in the same order of importance of the elements of the strategy; and (b) the key to effective online classes is to have a good planning strategy – properly sequenced, that encompassed several elements that are important to teaching and learning.

3. Both of the results of the Kendall W statistic for the elements in the *order of sequence* and in the *order of importance* when computed to a Chi Square value were found to be statistically significant. The Chi Square values showed strong relationships among the individual faculty ranking and rejected the null hypotheses.

It is concluded that the faculty of different distance education experiences – number of years teaching and number of distance classes conducted; (a) were equally skilled and capable to systematically plan online class development; and (b) were aware of the important elements that should be considered for planning of online courses.

4. About seventy three (72.72) percent of the faculty had taught four or more distance classes, about seventy three (72.58) percent of the faculty had utilized certain forms of computer based distance education tools (web-based = 67.74 percent and e-mail = 77.42 percent). Four out of five faculty have taught for three years or less and had

taught four or more distance classes. Conversely, 8 out of 28 faculty who have taught four years or more had delivered only three or less distance classes.

The results led to the following conclusions: (a) most of the faculty that are currently delivering non-computer based distance classes are equipped with the skills and experience of the basic online class delivery tools (e-mail and web-based); (b) these faculty may have little or no difficulty to deliver online classes if proper training is given, online delivery software are user-friendly, and the supports needed are provided; and (c) new faculty seems to be more likely to get involved in a new approach of a teaching format when compared to the seasoned distance education faculty

5. Comparisons between the faculty who have taught three or less distance classes and the faculty who have taught four or more distance learning classes showed: there was *no difference* in their ranking on the *sequence* of the elements; and there was a *difference* in their ranking of the elements in priority order of *importance*. The faculty who have delivered three or less distance classes ranked the elements of Students' Learning Preferences and Delivery Technology on the order of importance as third and fourth respectively. Conversely, the faculty who have delivered four or more distance classes ranked the same elements as vice-versa. The top two and the bottom four elements of the strategy had similar ranks on both orders (sequence and importance).

The results led to the following conclusions: (a) different experiences, skills, and knowledge pertaining to distance education did not influence new and seasoned distance education faculty who utilized various forms of distance delivery tools to have different opinions on the sequence of a planning strategy for online courses; (b) new distance education faculty faced unique challenges to online teaching because their teaching

experience leaned them to focus more on methodology rather than application of technology; and (c) different experiences, skills, and knowledge dealing with distance education would lead new and seasoned distance education faculty to have different perspectives on which of the two elements (Students' Learning Preferences and Delivery Technology) are more important for online course development process.

6. The distance education faculty indicated that the results of this study would strongly (19.35 percent) and moderately (70.96 percent) influence faculty in the WTE programs in their planning process of developing online courses. About seventy one (70.97) percent cent of the distance education faculty indicated that a planning strategy would influence how faculty in WTE programs conduct their online class planning and sixty one percent believed the strategy would influence their course designing process. The distance education faculty also indicated that online delivery would be; (a) a mainstream format (38.71 percent) of delivery; and (b) gaining popularity (48.39 percent), in the future context of WTE programs.

The results led to the following conclusions: (a) the distance education faculty in this study are aware that a systematic approach is important in planning and designing their online classes; (b) if this strategy is utilized properly, it should influence online/distance course planning and designing; (c) this planning strategy is important to initiate the effort of converting traditional class and other forms of distance classes into online courses, especially when the faculty showed strong agreement that online delivery will become the future mainstream of education formats; and (d) the strategy is also suitable to be utilized as its' own planning strategy to transfer the existing traditional

course into a complete online/distance course or for integrating traditional and online/distance classes.

Recommendations

Based upon the Delphi study and the review of literature the recommendations of this study are presented in two sections.

Follow up Research.

This study was able to answer all the questions posed in Chapter I – Introduction, however some of the findings need further clarification and understanding. Therefore, the following is recommended:

1. The model should be pilot tested in a variety of WTE programs and institutions. The National Center for Research in Vocational Education (NCRVE) institutions should be funded to conduct a comprehensive study of the model. Feedback from the pilot testing should be used to improve the model.
2. A comparative study should be conducted to determine whether this model could improve the planning of the online course development process. A comparison between the utilization of this model prior to using Instructional Design (ID) in the development process of online courses and the development of online courses that only used ID should be the focus of the study.

3. A study should be conducted to determine whether the elements and factors of the strategy are overlapping with the contents in the strategic planning models and ISD models. The study should emphasize how the process of the three models (strategic planning, online course planning strategy, and ID) interact with each other.

4. A follow-up study is needed to validate the findings of this study. It should examine how the faculty prioritize the order of importance of the elements when there is a difference of rankings between the faculty who have taught four or more distance classes and the faculty who have taught three or less distance classes. Also it is important to determine why the pattern occurs.

5. A high agreement existed among the faculty that online/distance learning will be becoming more popular in the future. However, a study is needed to investigate in what processes (i.e. planning, designing, developing, and implementing) of converting traditional courses into online/distance courses that these faculty need the most assistance with and determine the reasons for the need for this assistance.

6. A study to determine this strategy has the ability to be a singular model for development of an online course is recommended. Along with the research, the flexibility of this model to convert a traditional course into a complete online/distance course or course that uses integration of delivery approaches should be studied.

Application and Improvement of the Model.

This study has achieved its primary goals to identify, rank order the elements and factors, and to develop a planning strategy for the development of an online course.

However Chapter IV – Results and Findings and in the summary and conclusion section of this chapter did not explain how the strategy should be utilized and improved.

Application of the model: The following recommendations are presented to properly utilize the model.

(1) Considering the responses from this study, literature review, and researcher experience conducting online classes, this strategy was developed and should be utilized to: (a) guide faculty in the WTE programs in their process of deciding whether online classes should be offered or not, whether distance classes should be conducted completely online or through integrating of traditional and distance approaches, and whether the online classes need to incorporate several distance learning technologies; (b) help faculty in the decision making process of converting a traditional course to an online course with the assistance of a scholarly developed check list; and (c) help build a parameter in the planning process by which the ID can be utilized more appropriately to develop online courses.

(2) Faculty should be properly trained to use the model in order for them to maximize the effectiveness of the model to develop online classes.

(3) A computer-based program should be developed for this strategy to expedite the decision making on the planning of the online course development process.

(4) A handbook that will guide faculty who utilize this model to plan their development of online courses should be developed. The handbook should contain specific steps on how the model could be effectively utilized. Also should be included are the information pertinent to each of the elements, factors, and sub-factors.

Improvement of the Model. It is recommended that the developed model should be improved because of the following reasons:

1. In the current educational settings, both educators and learners are equally active and contribute to the body of the knowledge of the subject matter being discussed. Thus an on-going improvement process of the delivery process should be available throughout the course.

2. Contemporary online/distance classes, a distributed learning approach is more relevant to the current philosophies of teaching and learning (i.e. pragmatism - progressivism and constructivism)

3. Contemporary technologies (i.e. computer and information) that are used to deliver distance classes are more advanced, flexible, versatile and scalable, thus, these technologies are always relevant to the dynamics of "new forms" of distance classes. Conversely, educators and learners may sometimes be "intimidated" by the technologies, and often lack updates in their computer related operation skills.

4. Usually the effectiveness of three elements (i.e. Faculty Delivery/Teaching Preferences, Students' Learning Preferences, and Technological Skills) identified in this study are based upon how they can interact with one another in online/distance environments. At the same time, these three elements are depending on Delivery Technology to efficiently accomplish their interactions.

5. The latest Instructional Design (ID) models show that interaction of elements in a model is usually non-linear, cyclical, continuous (Seels & Glasgow, 1998). Even the

earlier models of ID have to be re-evaluated due to new approaches of teaching and learning (i.e. contextual, hands on, situated, distribute, etc.)

Taking all these reasons into consideration, an improved model of the strategy is proposed on Figure. 2 on page 103. There are no new elements added to the strategy, but it is believed that the new model is more "realistic" and more "viable" in the new forms of online course planning. The new model is divided into four sections: Course Scanning, Class Management Coordination, Communication and Interaction Monitoring, and Value Consideration. Each section has a unique role in the planning process according to the following:

I. Course Scanning addresses the issues of why a particular course is suitable or unsuitable to be completely and/or partially delivered online or to be offered at all;

II. Communication and Interaction Monitoring addresses the issues of what, why, when, and where certain technologies are suitable to be used; addresses the issues of what and how to enhance faculty teaching and student learning; and addresses the issues on how well faculty and students can use technologies;

III. Class Management Coordination addresses the issues of how, what, when, and where to effectively implement teaching and learning in an online environment;

IV. Value Consideration addresses the issues of what, how, when, and where the performance, quality, reliability, validity, and products of a course for faculty as well as the students; and

V. Value Consideration addresses the issues of what, how, when, and where the performance, quality, reliability, validity, and products of a course for faculty as well as students.

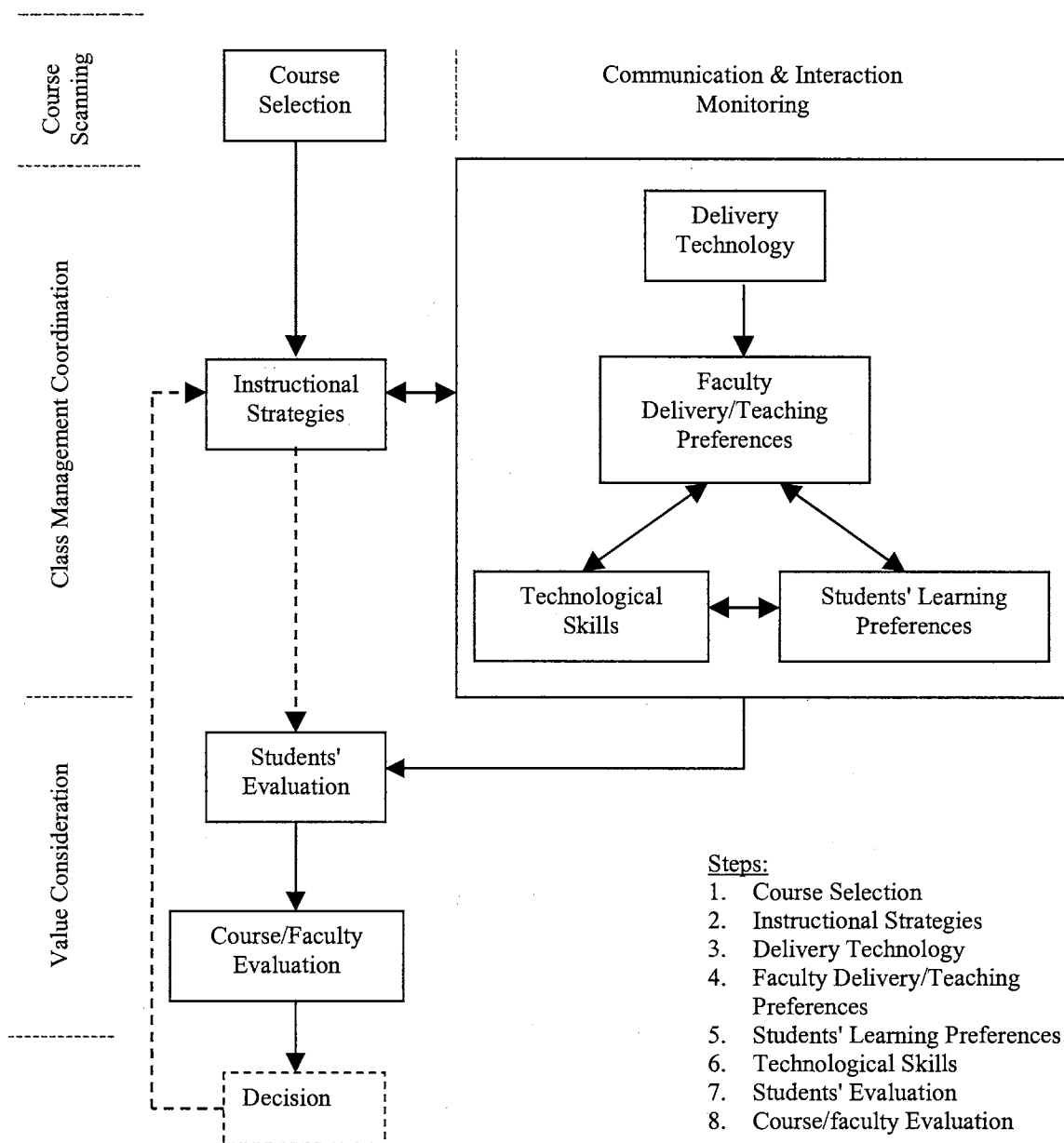


Figure 2. A Planning Strategy for the Development of Online Courses

BIBLIOGRAPHY

- Ahern, T.C., & Repman, J. (1994). The effect of technology on online education. Journal of Research on Computing in Education, 26(4), 537-546.
- Badham, R., & Mathews, J. (1989). The new production systems debate. Labor and Industry, 2(2), 194-246.
- Baker, M.H. (1995). Distance teaching with interactive television: Strategy that promote interaction with remote site students. In C. Sorensen, C. Schlosser, M. Anderson, & M. Simonson (Eds.). Encyclopedia of Distance Education Research in Iowa (p. 107-115). Ames, IA: Teacher Education Alliance.
- Bauer, J.W., & Rezabeck, L.L. (1992). The effect of two-way visual contact on student verbal interactions during teleconferenced instruction. (ERIC Document Reproduction Series N0. ED 347972)
- Beare, P.L. (1989). The comparative effectiveness of videotape, audiotape, and telelecture in delivering continuing teacher education. The American Journal of Distance Education, 3(2), 57-66.
- Bernt, F.L., & Bugbee, A.C. (1993). Study practices and attitudes related to academic success in a distance learning program. Distance Education, 14(1), 97-112.
- Biner, P.M., Dean, R.S., & Mellinger, A.E. (1994). Factors underlying distance learner satisfaction with televised college-level course. The American Journal of Distance Education, 8(1), 60-71
- Binner, P.M., Bink, M.L., Huffman, M.L., & Dean, R.S. (1995). Personality characteristics differentiating and predicting the achievement of televised-course students and traditional-course students. The American Journal of Distance Education, 9(2), 46-60.
- Bobrow, E.E. (1998). 10 minutes guide to planning. New York, NY: Alpha Books.
- Bramble, W.J. & Martin, B.L., (1995). The Florida teletraining project: Military training via two-way compressed video. The American Journal of Distance Education, 9(1), 6-26.

- Bruning, R., Landis, M., Hoffman, E., & Grosskopf, K. (1993). Perspective on an interactive satellite-based Japanese language course. The American Journal of Distance Education, 7(3), 22-38.
- Byrnes, P.J. (1994). The nature and development of decisions making: A self-regulation model. Mahwah, Nj: Lawrence Erlbaum Associates.
- Campion, M. (1995). The supposed demise of bureaucracy: Implications for distance education and open learning – More on the post-Fordism debate. Distance Education, 16(2), 192-216.
- Cheng, H.C., Lehman, J., & Armstrong, P. (1991). Comparison of performance and attitude in traditional and computer conferencing classes. The American Journal of Distance Education, 5(3), 51-64.
- Clark, R.E. (1983). Reconsidering research on learning from media. Review of Educational Research, 53(4), 445-459.
- Clark, R.E. (1994). Media will never influencing learning. Educational Technology Research, 53(4), 445-459.
- Coggins, C.C. (1988). Preferred learning styles and their impact on completion of external degree programs. The American Journal of Distance Education, 2(1), 25-37.
- Cohen, P., Ebeling, B., & Kulik, J. (1981). A meta-analysis of outcome studies of visual-based instruction. Educational Communication and Technology Journal, 29(1), 26-36.
- Concerva, Inc. (1980). Alternative procedures for the identification of programs, services and activities for providing vocational education to special populations. Washington, Dc: Bureau of Occupational and Adult Education, Division of Research and Demonstration.
- Cropley, A.J., & Khal, T.N (1983). Distance education and distance learning: Some psychological considerations. Distance Education, 4(1), 27-39.
- Cyril, H. (1972). Framework for building systematic program planning for adult education framework. Boston, Massachusetts: Kluwer Academic Publishing.
- Cyrs, T. (1997). Teaching and Learning at a distance: What it takes to effectively design, deliver and evaluate programs. San Francisco, CA: Jossey-Bass.
- Cyrs, T., & Smith, F. (1990). Teleclass teaching. Las Cruces, NM: Center for Education Development.

- Dede, C. (1990). The evolution of distance learning: Technology-mediated interactive learning. Journal of Research on Computing in Education, 247-264.
- Dede, C. (1996). The evolution of distance education: Emerging technologies and distributed learning. American Journal of Distance Education, 10(2), 4-36.
- Dede, C. (1997) Re-thinking how to invest in technology. Educational Leadership, 55(3), 12-16.
- Dede, C. (1998). Distance learning – distributed learning: Making the transformation. Learning and leading with technology. 23(7), 25-30
- Delbecg, Andre L, Van de Ven, A.H., & Gustafson, D. H. (1975). Group techniques for program planning: A guide to nominal group and Delphi process. Gelview, IL: Scott, Foresman, and Company.
- Delbecg, Andre L, Van de Ven, A.H., & Gustafson, D. H. (1986). Group techniques for program planning: A guide to nominal group and Delphi process. Middleton, WI: Green Briar Press.
- Dick, W., & Carey, L. (1996). The systematic design of instruction. New York: HarperCollins Publisher.
- Dille, B., & Mezack, M. (1991). Identifying predictors of high risk among community college telecourse students. The American Journal of Distance Education, 5(1), 24-35.
- Drucker, P. (1974). Management. New York, NY: Harper and Row.
- Edward, R. (1995). Different discourse, discourse of difference: Globalization, distance education, and open learning. Distance Education, 16(2), 241-255. ejournal/JVTE/v15n1/JvTE8.html.
- Evans, T. (1995). Globalization, post-Fordism and open and distance education. Distance Education, 16(2), 256-269.
- Farmer, I.E. (1997). A Delphi study of research priorities in Tech Prep. Journal of Vocational and Technical Education. 15(1). Available at: <http://scholar.lrb.vt.edu/>
- Fast, M. (1995). Interaction in technology: Mediated, multisite, foreign language instruction. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.
- Finn, J. (1964). The Franks had the right idea. NEA Journal, 53(4), 24-27.

- Fishburn, C. P. (1996). Personalistic decision theory, exposition, and critique. In H. Mintzberg, & B.J. Quinn, (Eds.). The strategy process: Concepts, contexts, cases. Upper Saddle River, NJ: Prentice Hall.
- Fjortoft, N.F. (1995). Predicting persistence in distance learning program. (ERIC Document Reproduction Service No. ED 387620).
- Fulford, C.P., & Zhang, S. (1993). Perceptions of interaction: The critical predictor in distance education. The American Journal of Distance Education, 7(3), 8-21.
- Gagne, M.R., Briggs, J.L., & Wager, W.W. (1992). Principles of Instructional design. Orlando, FL: Holt, Rinehart Winston.
- Garland, M.R.(1993). Students perception of the situational, institutional, dispositional, and epistemological barriers to persistence. Distance Education, 14(2), 181-198.
- Garrison, D.R. (1990). An analysis and evaluation of audio teleconferencing to facilitate education at a distance. The American Journal of Distance Education, 4(3), 13, 13-24.
- Garrison, D.R., & Shale, D. (1987). Mapping the boundaries of distance education: Problems in defining the field. The American Journal of Distance Education, 1(1), 7-13.
- Godsey, E.A. (1992). A Delphi study of the future services of learning centers in the United States. Unpublished thesis. Oklahoma State University.
- Golub, L.A. (1997). Decision Analysis: An integrated approach. Canada: John Wiley and Sons, Inc.
- Goodwin, P., & Wright, G. (1993). Decision analysis for management judgement. West Sussex, England: John Wiley and Sons Ltd.
- Gove, P. (1981). Webster's third new international dictionary of the English language unabridged. Springfield, MA: Merriam-Webster Inc.
- Greenwood, A.N., & McDevitt, M.A. (1987). Multiple teaching strategies for use with an instructional telecommunication network. Paper presented at the Society for Applied Learning, Orlando, FL.
- Harrison, N. (1999). How to design self-directed and distance learning programs. New York, NY: McGraw-Hil.
- Hays, L.W. (1973). Statistics for social sciences. New York, NY: Holt Rinehart and Winstont Inc.

- Henriques, P.T.C. (1999). Changing of Paradigm: Developing a contemporary strategy for technological education in Brazil. Unpublished thesis. Oklahoma State University.
- Herring, M., & Smaldino, S. (1997). Planning for interactive distance education: A handbook. Washington, DC: AECT Publications.
- Holmberg (Eds), Distance education: International perspectives (pp. 34-45). New York: Routledge.
- Holmberg, B. (1986). Growth and structure of distance education. London: Croom Helm.
- Holmberg, B. (1987). The development of distance education research. The American Journal of Distance Education, 1(3), 16-23.
- Holmberg, B. (1989). Theory and practice of distance education. London: Routledge.
- Holmberg, B. (1995). The evolution of the character and practice of distance education. Open Learning, 10(2), 47-53.
- Hsu, S., Marques, O., Hamza, M.K, & Alhalabi, B. (1999). How to design a virtual classroom. 10 easy steps to follow. The Journal, 27(2), 32-44.
- Jegede, O.J., & Kirkwood, J. (1994). Students' anxiety in learning through distance education. The American Journal of Distance Education, 15(2), 270-290.
- Kauffman, D.L. (1976). Teaching the future: A guide to future – oriented education. Palm Spring, CA: ETC Publication.
- Keegan D. (1995). Distance education technology for the new millennium: Compressed video teaching. (ERIC Document Reproduction Service No. ED 389 931)
- Keegan, D. (1986). The foundations of distance education. London: Croom Helm.
- Keegan, D. (1988). Theories of distance education: Introduction. In D. Stewart, D. Keegan, & B. Holmberg (Eds.), Distance education: International perspectives (pp.63-67). New York: Routledge.
- Kerka, S. (1996). Distance learning, the internet, and the world wide web. (Clearinghouse No. COE71753). Washington, DC:ERIC Clearinghouse on Adult, Career, and Vocational Education. (ERIC Document Reproduction Service No. ED395214).
- Keys, James P. (1997). Research Design. Stillwater. Oklahoma State University
- Koch, R. (1997). The financial times – guide to strategy. London, U.K: Pitman.

- Laube, M. R. (1992). Academic and social integration variables and secondary student persistence in distance education. Research in Distance Education, 4(1), 2-5.
- Laurillard, D. (1993). Rethinking university teaching: A framework for the effective use of educational technology. New Fetterlane, London: Routledge.
- Leh, A. S. C., & Mat Som, Y. (1999). Challenges and considerations when conducting an on-line course. In J. Price, J. Willis, D. Willis, M. Jost, & S. Boger-Mehall (Eds.), Technology and Teacher Education Annual 1999 (pp. 212-215). Charlottesville, VA: Association for the Advancement of Computing in Education.
- Linstone, H.A. & Turoff, M. (1975). The Delphi Method: Technique and application. Reading, MA: Addison-Wesley.
- Locatis, C., & Weisberg, M. (1997). Distributed learning and the internet. Contemporary Education, 68(2), 100-103.
- March, G.J., & Shapiro, Z. (1982). Behavioral decision theory and organizational decision theory. In R.G. Ungson, & N.D. Braunstein, (Eds.). (1982). Decision making: An interdisciplinary inquiry. Boston, Massachusetts: Kent Publishing.
- Martin, E.E., & Rainey, L. (1993). Student achievement and attitude in a satellite-delivered high school science course. The American Journal of Distance Education, 7(1), 54-61.
- Masini, E.B. (1993). Why futures studies? London, United Kingdom: Grey Seal Books.
- Mat Som, Y., & Leh, A. S. C. (1999). Concerns of designing distance learning environment. In B. Collins & R. Oliver (Eds.), Proceedings of ED-MEDIA99 (pp. 1221- 1222). Charlottesville, VA: Association for the Advancement of Computing in Education.
- May, S. (1993). Collaborative learning: More is not necessarily better. The American Journal of Distance Education, 7(3), 39-50.
- McArdle, E.H. (1991). Developing instructional design: A step-by-step guide to success. Menlo Park, CA: Crisp Publication.
- McFarlane, C., & Smaldino, S. (1997). The electronic classroom at a distance. In R. Rittenhouse & D. Spillers (Eds.), Modernizing the curriculum: The electronic classroom. Springfield, MO: Charles Thomas Publishers.
- Migliore, H. R. (1990). Strategic planning and management. Tulsa, OK: GP. Publishing
- Mill, R., & Tait, A. (1996). Supporting the learner in open and distance learning. London, Great Britain: Pitman.

- Mintzberg, H., & Quinn, B.J. (1996). The strategy process: Concepts, contexts, cases. Upper Saddle River, NJ: Prentice Hall.
- Moore, M.G. (1997). Editorial, tips for the manager setting up a distance education program. The American Journal of Distance Education, 10(1)
- Moore, M.G. (1998). Editorial, quality in distance education: Four cases. The American Journal of Distance Education, 11(3).
- Moore, M.G. (1999). Editorial, monitoring and evaluation. The American Journal of Distance Education, 102(43) 330.
- Moore, M.G. (1994). Autonomy and interdependence. The American Journal of Distance Education, 8(2), 1-5.
- Moore, M., & Kearsy, G. (1996). Distance Education: A system view. Belmont, CA: Wadsworth Company.
- Moore, M.G. (1995). The 1995 distance education research symposium: A research agenda. The American Journal of Distance Education, 9(2), 1-6.
- Mortensen, M., & Holmes, D. (1983). The use of the nominal group technique. Salt Lake City: Utah State University.
- National Center for Education Statistics. (1999). Issue brief: Distance education in higher education institution: Incidence, audiences, and plans to expand. February 1998 (NCES 98-132).
- Ndahi, B.H. (1998). A study of industrial and technical teacher education faculty acceptance of distance learning technology. Unpublished thesis. Oklahoma State University.
- Paloff, M. R. (1999). Building learning communities in cyberspace: Effective strategies for the online classroom. San Francisco, CA: Jossey-Bass Inc.
- Perraton, H. (1988). A theory for distance education. In D. Stewart, D. Keegan, & B. Holmberg (Eds.), Distance education: International perspectives (pp. 114-122). New York: Routledge.
- Peters, O. (1988). Distance teaching and industrial production: A comparative interpretation in outline. In D. Stewart, D. Keegan, & B. Holmberg (Eds.), Distance education: International perspectives (pp. 95-113). New York: Routledge.
- Pfeiffer, J.W., Nolan, M.T., & Goodstein, D.L. (1994). Applied strategic planning. San Diego, CA: Pfeiffer & Co.

- Phi Delta Kappa Commission on Schooling for the 21st Century. (1984). Handbook for conducting futures studies in education. Bloomington, IN: Phi Delta Kappa.
- Porter, E.M. (1997). Perspectives on strategy – contribution of Michael E. Porter. Edited by, F.A.J. Vna Den Bosch, A.P. De Man, London, UK: Kluwer Academic Publisher.
- Pugliese, R.R. (1994). Telecourse persistence and psychological variables. The American Journal of Distance Education, 8(3), 22-39.
- Raiffa, H. (1994). The perspective orientation of decision making: A synthesis of decision analysis, behavioral decisions making, and Game Theory. In S. Rios. Decision theory and decision analysis: Trends and challenges. Boston, Massachusetts: Kluwer Academic Publishing.
- Renner, W. (1995). Post-Fordist visions and technological solutions: Education technology and the labor process. Distance Education, 16(2), 285-301.
- Richardson, J.G. (1984). Model of reality: Shaping thought and action. Mt. Airy, MD: Lomond.
- Rios, S. (1994). Decision theory and decision analysis: Trends and challenges. Boston, Massachusetts: Kluwer Academic Publishing.
- Rosenberg, J.N. (1998). The Internet learning revolution: Re-inventing education and training for networking age. Performance Improvement, 38(2) 45-48.
- Ross, L.R., & Powell, R. (1990). Relationship between gender and success in distance education courses: A preliminary investigation. Research in Distance Education, 2(2), 10-11.
- Ross, S.M., Morrison, G.R., Smith, L.J., & Cleveland, E. (1991). An evaluaiton of alternative distance tutoring models for at risk elementary schools children. (ERIC Document Reproduction Service No. ED 335 009)
- Rothwell, J.W., & Kazanas, H.C. (1992). Mastering the instructional design process: A systematic approach. San Francisco, CA: Jossey-Bass Publishers.
- Rothwwell, J.W., & Cookson, S.P. (1997). Beyond Instruction: Comprehensive program planning for business and education. San Francisco, CA: Jossey-Bass.
- Rumble. (1995). Labor market theories and distance education III: Post-Fordism the way forward? Open Learning, 10(3), 47-52.

- Russel, T.L (1999). The “no significant difference phenomenon”. Available at: <http://tenb.mta.ca/phenom/phenom.html>
- Salisbury, D.F. (1996). Five technologies for educational change. Englewood Cliffs, N.J: Educational Technology Publications.
- Schoenfelder, K.R. (1997). Student involvement in the distance education classroom: Teacher and student perceptions of effective instructional methods. In C. Sorensen, C. Schlosser, M. Anderson, & M. Simonson (Eds), Encyclopedia of distance education research in Iowa (pp.79-85). Ames. IA: Teacher Education Alliance.
- Seels, B., & Glasgow, Z. (1998). Making instructional design decision. Columbus, Ohio: Prentice Hall.
- Shavelson, J. R. (1996). Statistical reasoning for the behavioral sciences. Needham Height, Massachusetts: A Simon & Schuster Company.
- Shumaker, C.G. (1993). A Decision-making model for adding, modifying, or terminating vocational education programs in Oklahoma. Unpublished Dissertation. Oklahoma State University.
- Siegel, S. (1956). Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill.
- Simmons, R.M., Smaldino, S., Albright, M., & Zvacek, S. (2000). Teaching and Learning at a Distance: Foundations of Distance Education. Uppersaddle River, NJ: Prentice Hall.
- Simonson, M. (1995). Overview of the Teacher Education Alliance, Iowa Distance Education Alliance research plan. In C. Sorensen, C. Schlosser, M. Anderson, & M. Simonson (Eds.), Encyclopedia of distance education research in Iowa (p. 3-6). Ames, Iowa: Teacher Education Alliance.
- Smith P.C. Ragan, T.J. (1996). Instructional design. New York, NY: Merrill/Macmillan College Publishing.
- Sorensen, C.K. (1995). Attitudes of community college students toward interactive TV instructional. In C. Sorensen, C. Schlosser, M. Anderson, & M. Simonson (Eds.), Encyclopedia of distance education research in Iowa (p. 131- 148). Ames, Iowa: Teacher Education Alliance.
- Souder, W.E. (1993). The effectiveness of traditional vs. Satellite delivery in three management of technology master’s degree programs. The American Journal of Distance Education, 4, 37-53.

- Stone, T.E. (1992). A new look at the role of locus of control in completion rates in distance education. Research in Distance Education, 4(2), 6-9.
- Svenson, A.R. & Rinderer, J.M. (1992). The training and development strategic plan workbook. London, UK: Prentice-Hall Inc.
- Tennyson, R.D. (1995). The impact of the Cognitive Science movement on instructional design fundamentals: In B.B Seels (Eds.) Instructional design fundamentals: A reconsideration (p. 113-136) Englewood Cliffs, NJ: Educational Technology Publication.
- Thach, L., & Murphy, L. (1994). Collaboration in distance education: From local to international perspectives. The American Journal of Distance Education, 8(3), 5-21.
- Tuckey, C.J. (1993). Computer conferencing and the electronic white board in the U.K: A comparative analysis. The American Journal of Distance Education, 7(2), 58-72.
- Ungson, R.G., & Braunstein, N.D. (1982). Decision making: An interdisciplinary inquiry. Boston, Massachusetts: Kent Publishing.
- Wagner, E. & McCombs, B. (1994). Learner centered psychological principles in practice: Designs for distance education. Denver, CO: DLS Group.
- Weatherman, R., & Swenson, K. (1974). Delphi technique. In s.P. Hencley & J.R. Yates (Eds.). Futurism in Education. Methodologies (p. 97-114). Berkeley, CA: McCutchan Publishing Corporation.
- Weiss, W.H. (1985). Decision making for first-time manager. New York, NY: Amacon.
- Welsh, M.T. (1999). Implication of distributed learning for instructional designers: How will the future affect the practice. Educational Technology, March-April, 41-45.
- West, C.K., Farmer, J.A., & Wolf. (1991). Instructional design: Implications from cognitive science. Englewood Cliffs, NJ: Prentice Hall.
- Whaley, C.E. (1995). Enhancing thinking and creativity with future studies. Unionville, NY: Royal Fireworks Press.
- Wicklein, C.R., & Rojewski, W.J. (1999). Toward a "unified curriculum framework" for Technology Education. Journal of Industrial Teacher Education, 36(4), Summer 1999. Available at: <http://scholar.lib.vt.edu/ejournal/JITE/v36n4/wicklein.html>.
- Willis, J.W, Johnson, D.L, & Dixon, P.N. (1983). Computers, teaching and learning. Beaverton, OR: Dilithium.

Zemke, R. (1982). How market research techniques can pay off for trainers. Training, 15(12), 48-49.

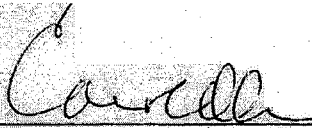
APPENDIX A

INSTITUTIONAL REVIEW BOARD

**OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD**

Date: October 11, 1999 IRB #: ED-00-168
Proposal Title: "A STRATEGY FOR THE DEVELOPMENT OF ONLINE COURSES FOR
WORKFORCE TEACHER EDUCATION PROGRAMS"
Principal Investigator(s): Garry Bice
Yahya Mat-Som
Reviewed and Processed as: Exempt
Approval Status Recommended by Reviewer(s): Approved

Signature:



Carol Olson, Director of University Research Compliance

October 11, 1999

Date

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modification to the research project approved by the IRB must be submitted for approval. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

APPENDIX B

E-MAIL MESSAGE TO NOMINATORS

Dear Dr. _____

I hope you are having a great semester in the Fall 99. Thanks in advance for spending a few minutes of your time to read this message.

I am conducting research* on the topic "A Planning Strategy for the Development of Online Courses for Workforce Teacher Education programs" for my Ed.D in Occupational and Adult Education program at Oklahoma State University. Faculty in the University Council for Workforce and Human Resources Education (UCWHRE) institutions will be the participants. I was informed by Dr. Reynaldo L. Martinez at Oklahoma State University that you are the representative for the UCWHRE for your institution. Therefore, I am seeking your help to provide a list of names of faculty (also their e-mail addresses if possible) in your institution who are in the Workforce Teacher Education programs** and who have delivered distance learning courses. After receiving the names, I will personally contact and solicit the individual faculty for their consent to participate in my research. You can respond to this message by (1) using my e-mail address yahya_dissertation @ yahoo.com, (2) you can use the reply feature of your e-mail tool, or (3) send a list of the faculty by fax (405-744-6290).

Your cooperation to help me with this matter is appreciated very much.

Thanks again.

Sincerely yours.

Yahya Mat Som
305 Willard Hall
College of Education
Oklahoma State University

Tel: (405) 744-4347/8010 (office)
Fax: (405) 744-6290
E-mail: yahya_dissertation @ yahoo.com

* This study has been approved by the Oklahoma State University Institutional Review Board - IRB No.ED.00.168

**A Workforce Teacher Education Programs - A certification or non-certification program that prepares a teacher/trainer to instruct/train individual for a career or employment. This includes occupational, vocational, technical, adult education, workforce education, practical arts, and human resources development programs.

APPENDIX C

**UCWHRE INSTITUTIONS AND FACULTY
PARTICIPATION IN THE STUDY**

UCWHRE INSTITUTIONS AND FACULTY PARTICIPATION IN THE STUDY

No	Institutions	Nominees Invited	Agreed to participate	Delphi respondents	Responses			
					R1	R2	R3	R4
1	University of Missouri, Columbia	5	4	3	2	3	2	1
2	University of Idaho	8	8	8	8	8	8	8
3	University of Minnesota	4	2	1	1	1	1	1
4	University of Arkansas	10	8	8	8	6	6	5
5	Louisiana State University	2	2	2	2	1	1	1
6	North Carolina State University	6	6	6	6	5	4	4
7	Colorado State University	5	4	4	1	2	1	1
8	Auburn University, Alabama	2	2	2	1	-	-	-
9	Oklahoma State University	6	6	3	3	3	3	3
10	University of Georgia	8	5	5	4	5	5	5
11	Virginia Tech and State University	5	3	2	1	2	2	2
	Total	64	49	44	37	37	33	31

- R1, R2, R3, R4: Responses from the surveys on round one through four.

APPENDIX D

E-MAIL MESSAGE TO NOMINEES

Dr. _____

November 4, 1999

Dear Dr. _____

Re: Research Participation

Thank you for showing your interest in my research project to develop a strategy for the development of online courses. Your experience and knowledge pertinent to distance learning¹ will be very useful to help enrich the subject matter/content needed for this study.

Faculty in the Workforce Teacher Education programs² from the University Council for Workforce and Human Resource Education institutions who have experience in distance learning will be the intended participants. The study will involve a questionnaire type of survey that is fashioned from a Delphi technique. Participants in this study will be asked to complete the survey that will involve up to four questionnaires, taking from 10 to 25 minutes for each one.

The outcomes of this study might be used to guide and to inspire distance learning educators in Workforce Teacher Education programs to better prepare and implement online courses. At the same time, the model will be a useful guide for other college educators who try to deliver courses online.

Your involvement in this survey is important and all the information requested will be confidential. There will be no individual names, departments, schools or institutions revealed throughout the study. The researcher is the only person with access to this information. All responses will be coded (numbers and letters) and upon completion of the study, the responses will be destroyed. At any time in the study you may withdraw as a participant of the study.

I am asking for a few minutes of your time to read the attached Research Study Consent Forms. If you agree to participate in this research, please complete the form and return it in the enclosed self-addressed stamped envelope.

I will provide every participant in this study with a brief statement of the findings through e-mail. Your full cooperation and help are greatly appreciated.

Thank you in advance for your assistance and participation.

Sincerely,

Yahya Mat Som
36-S, University Place, Apt#5
Stillwater, OK 74975

E-mail: yahya_dissertation@yahoo.com
Phone: (405) 744-4347/8010 (office)

¹Distance Learning Protocols - include compressed video, internet, video/audio conferencing, web-based, interactive television, etc.

²A Workforce Teacher Education Program - A certification or non-certification program that prepares a teacher/trainer to instruct/train individual for a career or employment. This includes occupational, vocational, technical, adult education, workforce education, practical arts, and human resources development programs.

APPENDIX E

CONSENT FORM

I, _____, hereby direct Dr. Garry R. Bice and Yahya Mat Som to perform the following procedure:

1. Faculty who have experience delivering distance learning courses will be selected from the University Council for Workforce and Human Resources Education (UCWHRE) institutions. The survey materials will be given through the U.S mail service and/or e-mail.
2. Participants for the pilot testing process will be involved in approving the questions for the survey. This process will take place during the Fall of 1999 semester. Pilot testing will begin once approval from the Institutional Review Board of Oklahoma State University (OSU) is received.
3. Participants for the modified Delphi technique will be involved in answering the survey questions in three different phases. This survey will take place during the Fall of 1999 and Spring of 2000 semesters.
4. All survey data will be kept in hard copies and will be destroyed upon completion of this study. Results of the analysis from the survey will be published in the final research paper and other publications. At no time will any of the participant's name, department, school, college or institution be revealed to any committee member or to other participants, nor will it be used in anyway to the final document or any publication.
5. Educators in the Workforce Teacher Education programs face various challenges delivering courses through distance learning technologies (Ndahi, 1998). Therefore, the results from this study may provide helpful information to enable educators to develop online courses.

This is part of an investigation entitled:

A Strategy for the Development of Online Courses for Workforce Teacher Education Programs.

The purpose of this process is to develop a strategy for the development of courses for online delivery. This strategy, which would be presented as a model, will help the educators in the Workforce Teacher Education programs to deliver their online courses effectively.

I understand that participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in this project at any time without penalty after notifying the project director. I may contact Dr. Garry R. Bice at telephone number (405) 744-9196 or Yahya Mat Som at telephone number (405) 744-1191, fax (405) 744-6290 or e-mail address yahya_dissertation@yahoo.com. I may also contact Sharon Bacher, (405) 744-5700, Executive Secretary, 305 Whitehurst, Oklahoma State University, Stillwater, OK 74075.

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: _____ Time: _____ am/pm

Signed: _____
(Signature of Participant)

I certify that I have personally explained all elements of this to the subject or his/her representative before requesting the subject or his/her representative to sign it

Signed: _____ Date: _____ Time: _____

Note: This study has been approved by the OSU Institutional Review Board, IRB No. ED-00-168

APPENDIX F

ROUND ONE SURVEY MATERIAL

Survey Questionnaire: Round One

Part I.

1. How many times have you delivered distance learning courses (same or different courses)? *Please check one of the following*

- (a) One course (b) Two courses (c) Three courses (d) Four or more courses

2. What types of distance learning tools have you used? *Check all the tools that you have used from the following list.*

- (a) Interactive television (b) Compressed video
(c) Audio conferencing (d) Audio-Video conferencing
(e) Web-based (f) E-mail
(g) Listserv (h) MOO
(i) Other _____

Part II.

Assume that the unit of the university where you work has been mandated to offer online courses. Assume all other factors (e.g. finance, policy, infrastructure, curriculum) pertinent to these courses have been decided except the development of the specific online course. Further, faculty have been advised that the subject matter/content of each course that will be delivered online should be the same as the face-to-face instruction, although the delivery format is going to be different.

Your role is to develop a strategy for the development of online courses based on your experience using distance learning technology (interactive television, compressed video, audio/video conferencing, web-based, internet, MOO etc.). As you may realize, developing online courses may or may not consist of all the elements needed to develop face-to-face instruction. In online classes, technology plays important roles in delivering content in order to accommodate different teaching and learning styles, to manage the classes and to evaluate achievement of students.

Several scholars suggest a number of elements to be considered when developing online courses. However, there is no consensus on how these elements should be sequenced for effective implementation of online courses. There are also discrepancies in the literature on which elements need to be considered as more important than others.

My readings about online courses, and my experience and research related to online course processes lead me to believe there are seven (7) elements that must at least be considered when developing online courses. Those elements are: course selection, teaching styles, learning styles, technology, delivery format, management styles, and evaluation.

Question

Based on your experience with distance learning course development, what elements do you believe should be considered in developing future online courses? *(Check all elements from the following list **and/or provide your own elements** that you believe are important to be considered for the development of online courses.)*

You may or may not consider the listed elements. All information you provide will be given consideration. Do not attempt to rank the elements, as that process will take place in a future round.

- | | |
|---|--|
| <input type="checkbox"/> Course selection | <input type="checkbox"/> Teaching styles |
| <input type="checkbox"/> Learning styles | <input type="checkbox"/> Technology |
| <input type="checkbox"/> Delivery format | <input type="checkbox"/> Management styles |
| <input type="checkbox"/> Evaluation | |
| <input type="checkbox"/> Others | |

- i) _____
- ii) _____
- iii) _____
- iv) _____
- v) _____

APPENDIX G

U.S. POSTAL SERVICE INVITATION LETTER

Dr. _____

November 16, 1999

Dear Dr. _____

Re: Research Participation- Delphi Technique

Thank you for allowing a few minutes of your time read this letter of request – a research project to develop a strategy for the development of online courses. Your experience and knowledge pertinent to distance learning¹ will be very useful to help enrich the subject matter/content needed for this study.

Faculty in the Workforce Teacher Education programs² from the University Council for Workforce and Human Resource Education institutions who have experience in distance learning will be the intended participants. The study will involve a questionnaire type of survey that is fashioned from a Delphi technique. Participants in this study will be asked to complete the survey that will involve up to four questionnaires, taking from 10 to 25 minutes for each one.

The outcomes of this study might be used to guide and to inspire distance learning educators in Workforce Teacher Education programs to better prepare and implement online courses. At the same time, the model will be a useful guide for other college educators who try to deliver courses online.

Your involvement in this survey is important and all the information requested will be confidential. The researcher is the only person with access to this information. All responses will be coded (numbers and letters) and upon completion of the study, the responses will be destroyed. At any time in the study you may withdraw as a participant of the study.

I am asking for a few minutes of your time to read the attached Research Study Consent Forms. If you agree to participate in this research, please complete the form and answer the First Round survey questions and return the materials in the enclosed self-addressed stamped envelope.

I will provide every participant in this study with a brief statement of the findings through e-mail. Your full cooperation and help are greatly appreciated.

Thank you in advance for your assistance and participation.

Sincerely,

Yahya Mat Som
36-S, University Place, Apt#5
Stillwater, OK 74975

E-mail: yahya_dissertation@yahoo.com
Phone: (405) 744-1191 (home) or (405) 744-4347/8010 (office)
Fax: (405) 744-6290

¹Distance Learning Protocols - include compressed video, internet, video/audio conferencing, web-based, interactive television, etc.

²A Workforce Teacher Education Program - A certification or non-certification program that prepares a teacher/trainer to instruct/train individual for a career or employment. This includes occupational, vocational, technical, adult education, workforce education, practical arts, and human resources development programs.

APPENDIX H

ROUND TWO SURVEY MATERIAL

Survey Questionnaire: Round Two

The popularity and feasibility of the contemporary online learning at higher institutions indicate that this form of teaching-learning technique would be a potential interaction media that can be a mainstream of future education delivery tool. In addition, the advancement of information, telecommunication and computer technologies that make the integration of several distance learning tools (television, video-conference, chat, bulletin board, e-mail, and etc.) will significantly enhance the effectiveness of online teaching and learning.

Based on these notions and responses from the first two rounds of Delphi surveys, I am seeking your input, what would be the best elements and factors to be considered when developing a strategy for the development of future online courses for Workforce Teacher Education Programs

****Your role is to develop a strategy for the development of online courses.****

Question 1

Based on the responses from the Round One and Two surveys the **attached listed elements have been considered to be important** when developing a strategy for future online course development. In this round you are asked

a) to **rank (1-7) these elements as the most important elements** when developing an online course. Number one (1) would be the most important element and number seven (7) would be the least important element in the strategy. You can also rank more than one elements equally (with the same number) if you think these elements are equally important in the strategy.

b) to **rank (1-7) these elements based on the sequence of steps** that you believe would work best when developing an online course. Number one (1) would be the first element/step and number seven (7) would be the last element/step to be considered in the strategy. You can also rank more than one elements equally (with the same step/number) if you think these elements should be at the same sequence in the strategy.

Importance (1 - 7)	Sequence (1 - 7)	Elements	Issues Addressed
		Course Selection	This element should address the issue of, why do you think certain courses are suitable or unsuitable to be fully and/or fully delivered online.
		Delivery Technology	This element should address the issue of what, why, when and how technologies to be/can be used in online delivery.
		Learning Preferences	This elements should address the issue of what, why and how to enhance students learning in an online environment.
		Teaching Preferences	This elements should address of what, why and how to enhance teachers teaching in an online environment.
		Instructional Strategies	This elements should address the issue of how, what, when and where to accomplish the teaching-learning goals.
		Technological skills	This element should address the issue students and faculty computer/technological skills.
		Evaluation/assessment	This elements should address the issue of students assessment and program evaluation based on what, why, how, when and where.

Question 2

After analyzing all the responses in the Round One survey it was found that **each element of the strategy consists of several factors** that are suggested for consideration. Based on your experience, **what factors are to be considered in making the decision for each of the elements** of the strategy?

Factors in each of the elements collected from the Round One survey

A. Course Selection			
Factors	Agree	Disagree	Suggestions
Goal (objectives/outcomes/competencies)			
Content of course (static/dynamic/level)			
Learner (level/quantity)			
B. Delivery Technology			
Factors	Agree	Disagree	Suggestions
Tools (application software/hardware/ availability/age/ compatibility)			
Support (technical/staff/ organizational)			
Accessibility (learner/remote site/ communication)			
C. Learning Preferences			
Factors	Agree	Disagree	Suggestions
Learner characteristics (attitude/maturity level)			
Learner interest (auditory/visual/text)			
Computer skill (training)			
D. Teaching Preferences			
Factors	Agree	Disagree	Suggestions
Distance learning knowledge (faculty training/comfort level)			
Purpose of teaching (academic rigor/ course integrity/ content determination)			
Faculty characteristics (attitude/ motivation)			
Faculty needs (time/ incentives/ workload/professional/ development)			
Course management (web site/digital content/ planning)			
E. Instructional Strategies			
Factors	Agree	Disagree	Suggestions
Communication (media type/feedback type/ length of class)			
Interaction (mode – synchronous & asynchronous/ level/ frequency/ accessibility/ interactiveness/ learning community)			
Support (technical/content/ administrative/ organizational)			
Learning & Teaching resources (online/ digital/ mode)			
Assignments (individual/group)			
F. Evaluation/ Assessment			
Factors	Agree	Disagree	Suggestions
Accountability (site coordinator or facilitator/continuous monitoring)			
Interactivity			

APPENDIX I

ROUND THREE SURVEY MATERIAL

Survey Questionnaire: Round Three

The popularity and feasibility of the contemporary online learning at higher institutions indicate that this form of teaching-learning technique could be a potential mainstream of future education delivery. In addition, the advancement of information, telecommunications and computer technologies that incorporate the integration of several distance learning tools (television, video-conference, chat, bulletin board, e-mail, and etc.) will significantly enhance the effectiveness of online teaching and learning.

Based on these notions and responses from the first two rounds of Delphi surveys, I am seeking your input to identify the best elements and factors to be considered for a strategy for the development of future online courses for Workforce Teacher Education Programs.

****Your role is to develop a strategy for the development of online courses****

Question 1.

Based on the responses from the Round One and Two surveys the **attached listed elements have been considered to be important** when developing a strategy for future online course development. In this round you are asked to:

a) **rank (1-7)** these elements from the **most important to the least important elements** when developing an online course strategy. Number one (1) would be the most important element and number seven (7) would be the least important element in the strategy. You may also rank elements equally (with the same number) if you think these elements are equally important in the strategy; and

b) **rank (1-7)** these elements based on the **sequence of steps** that you believe would work best when developing an online course strategy. Number one (1) would be the first element/step and number seven (7) would be the last element/step to be considered in the strategy. You may also rank elements equally (with the same step/number) if you think these elements should be at the same sequence in the strategy.

Suggested Elements for the Strategy

Importance (1- 8)	Sequence (1-8)	Elements	Issues Addressed
		Course Selection	This element should address the issue of, why do you think certain courses are suitable or unsuitable to be fully and/or fully delivered online.
		Students' Learning Preferences	This element should address the issue of what, why and how to enhance students learning in an online environment.
		Faculty Delivery/Teaching Preferences	This element should address of what, why and how to enhance teachers/faculty teaching in an online environment.
		Instructional Strategies	This element should address the issue of how, what, when and where to accomplish the teaching-learning goals.
		Delivery Technology	This element should address the issue of what, why, when and how technologies are/can be used in online delivery.
		Technological skills	This element should address the issue of students and faculty computer/technological skills.
		Course/Instructor Evaluation	This element should address the issue of course/instructor evaluation based on what, why, how, when and where.
		Students' Evaluation	This element should address the issue of students' performance based on what, why, how, when and where.

Question 2.

Responses from the Round One and Two surveys indicated that **each element of the strategy consists of several factors** that are suggested for consideration. In this round you are asked to **rank these factors** based on what is **the most important to the least important factors** in each element when making the decision to develop the strategy. Number one (1) would be the most important factor and the highest number would be the least important factor in each elements in the strategy. You may also rank more than one factor equally (with the same number) if you think these factors are equally important in the element.

Factors in each of the elements collected from the Round One and Two surveys

Course Selection (This element should address the issue of, why do you think certain courses are suitable or unsuitable to be fully and/or fully delivered online.)	
Factors	Rank (1 - 6)
Goal of course (objectives/outcomes/competencies)	
Content of course (static/dynamic/level/academic rigor/course integrity)	
Learner composition (level/quantity/motivation/diversity)	
Nature of course (face-to-face/disciplines/technology involvement)	
Regulatory (required/elective/occupational placement)	
Need for the course (target population/faculty and students proficiency)	

Students' Learning Preferences (This element should address the issue of what, why and how to enhance students learning in an online environment.)	
Factors	Rank - (1 - 5)
Learner characteristics (attitude/maturity/level/background/ motivation)	
Learner interest (auditory/visual/text)	
Computer skills (training/self-acquisition/peer learning)	
Students' learning style (visual/auditory/contextualized/ individualized/lock-step)	
Students' needs (impaired/academically challenge/disadvantage/ excellent/average)	

Faculty Delivery/Teaching Preferences (This element should address the issue of what, why and how to enhance teachers teaching in an online environment.)	
Factors	Rank (1 - 5)
Distance learning knowledge (faculty training/comfort level)	
Purpose of teaching (academic rigor/ course integrity/ content determination)	
Faculty characteristics (attitude/ motivation)	
Faculty needs and supports (time/incentives/ workload/ professional development)	
Course management (web site/digital content/ planning/ feedback)	

Instructional Strategies (This element should address the issue of how, what, when and where to accomplish the teaching-learning goals.)	
Factors	Rank (1 - 8)
Communication strategy (media type/feedback type/ length of class)	
Interaction strategy (mode – synchronous & asynchronous/ level/ frequency/ accessibility/ interactiveness/ learning community)	
Support needed (technical/content/ administrative/ organizational)	
Learning & Teaching resources (online/ digital/ mode/electronic links)	
Scope of assignments (individual/group/on-going/fixed date)	
Faculty involvement (frequency/depth)	
Off class dialogue (e-mail/web site/bulletin board etc.)	
Type of course (open entry-exit/fixed term)	

Delivery Technology (This element should address the issue of what, why, when and how technologies are/can be used in online delivery.)	
Factors	Rank (1 - 4)
Tools - software & hardware (scalability/ availability/age/compatibility)	
Support needed (technical/staff/ organizational)	
Accessibility (learner/remote site/ communication)	
Operational cost	

Technological Skills (This element should address the issue of student and faculty computer/technological skills.)	
Factors	Rank (1 - 5)
Support needed (personal/infrastructure/policy)	
User experience (teacher/students/support personal)	
Personal knowledge acquired (technology/teaching)	
Distance Learning experience (prerequisite/on-going/one-shot)	
Feedback tools utilization (flexible/various/fixed)	

Course/Faculty Evaluation (This element should address the issue of course/faculty evaluation based on what, why, how, when and where.)	
Factors	Rank (1 - 3)
Remote students (advantages/disadvantages)	
Tuition Cost (in-state/out-state students)	
Students' learning (face-to-face versus online/integration of modes)	

Students' Evaluation (This element should address the issue of students' performance based on what, why, how, when and where.)	
Factors	Rank (1 - 6)
Accountability of assessment (site coordinator or facilitator/continuous monitoring)	
Interactivity of assignment (frequency/depth/maturity)	
Format of assessment (summative/formative)	
Ease of management (navigation/frequency)	
Types/Methods of feedback (test/presentation/interviews/papers/etc.)	
Quality of assessment (level/assignments types/accuracy/validity/reliability)	

APPENDIX J

ROUND FOUR SURVEY MATERIAL

Dr. _____

March 5, 2000

Dear Dr. _____

Re: Final Survey

Your responses to the previous three surveys inspired me to complete this study with the highest quality. Also, your outstanding participations and supports in the last four months deserve my deepest appreciation. It is my hope that you could give the same commitment for this survey.

After reviewing, analyzing and synthesizing responses for the third survey, I reorganized the elements and factors of the strategy from the highest rank to the least. In this final survey you are requested to:

1. re-rank the elements and factors if you disagree with the current ranking, and
2. answer the Optional Questions on the last page of the survey material

Since your response will reflect the outcome of this study, therefore your deepest thought and sincerest opinion in this survey is appreciated.

Thank you in advance for your assistance and participations.

Sincerely,

Yahya Mat Som
36-S, University Place, Apt#5
Stillwater, OK 74975

E-mail: yahya_dissertation@yahoo.com
Phone: (405) 744-4347/8010 (office)

Survey Questionnaire: Round Four

I. Results From the Round Three Survey: Ranking of the Elements Based on Their Sequence.

Instruction: Rank (1-8) these elements based on the sequence of steps that you believe would work best when developing an online course strategy. Number one (1) would be the first element/step and number eight (8) would be the last element/step to be considered in the strategy. You may also rank elements equally if you think these elements should be at the same sequence in the strategy.

Rank	Elements	Additional Information	New Rank
1	Course Selection	This element should address the issue of, why do you think certain courses are suitable or unsuitable to be fully and/or partially delivered online.	
2	Instructional Strategies	This element should address the issue of how, what, when and where to accomplish the teaching-learning goals.	
3	Delivery Technology	This element should address the issue of what, why, when and how technologies are/can be used in online delivery.	
4	Faculty Delivery/Teaching Preferences	This element should address of what, why and how to enhance faculty teaching in an online environment.	
5	Students' Learning Preferences	This element should address the issue of what, why and how to enhance students learning in an online environment.	
6	Technological skills	This element should address the issue of students and faculty computer/technological skills.	
7	Students' Evaluation	This element should address the issue of students' performance based on what, why, how, when and where.	
8	Course/Faculty Evaluation	This element should address the issue of course/instructor evaluation based on what, why, how, when and where.	

II. Results From the Round Three Survey: Ranking of the Elements Based on Their Importance

Instruction: Rank these elements based on what is the most important to the least important element when making the decision to develop the strategy. Number one (1) would be the most important element and number eight (8) would be the least important element in the strategy. You may also rank more than one element equally if you think these elements are equally important.

Rank	Elements	Additional Information	New Rank
1	Course Selection	This element should address the issue of, why do you think certain courses are suitable or unsuitable to be fully and/or partially delivered online.	
2	Instructional Strategies	This element should address the issue of how, what, when and where to accomplish the teaching-learning goals.	
3	Students' Learning Preferences	This element should address the issue of what, why and how to enhance students learning in an online environment.	
4	Delivery Technology	This element should address the issues of what, why, when and how technology is/can be used in online delivery.	
5	Faculty Delivery/Teaching Preferences	This element should address of what, why and how to enhance faculty teaching in an online environment.	
6	Technological skills	This element should address the issue of students and faculty computer/technological skills.	
7	Students' Evaluation	This element should address the issue of students' performance based on what, why, how, when and where.	
8	Course/Faculty Evaluation	This element should address the issue of course/instructor evaluation based on what, why, how, when and where.	

III. Results From the Round Three Survey: Ranking of the Factors In Each Elements Based on Their Importance

Instruction: Rank the factors in each Element (I-VIII) based on what is the most important to the least important factor when making the decision to develop the strategy. Number one (1) would be the most important factor and the highest number would be the least important factor in each element of the strategy. You may also rank more than one element equally if you think these elements are equally important.

Element I. Course Selection			
3 rd Rank	Factors	Additional information	New Rank (1-6)
1	Goal of course	Will the sub-factors achievable in online environment?	
2	Nature of course	How would the sub-factors effect teaching-learning process in the online environment?	
3	Need for the course	What would be the reactions of the sub-factors and how to accommodate their involvement in online environment?	
4	Content of course	How would the sub-factors affect teaching-learning process in the online environment?	
5	Learner composition	How to serve learners based on the sub-factors and would it be viable, and cost effective?	
6	Regulatory	What effect do the sub-factors have on completers of this course?	
Element II. Instructional Strategies			
Rank	Factors	Additional information	(1-8)
1	Interaction strategy	What, when, where and how to increase/enhance interaction based on the listed sub-factors?	
2	Support needed	How instructional strategy can be accomplished? What and how the sub-factors can do to ensure the accomplishment of the instructional strategy?	
3	Communication strategy	What, when, where, why and how to achieve the goal of the course based on the sub-factors in order to enhance communication among participants?	
4	Learning & Teaching resources	What, when, where, why and how to address the issue in the listed sub-factors in order to increase the quality of teaching and learning?	
5	Scope of assignments	What, when, where, why and how teaching and learning can be accomplished effectively based on the sub-factors?	
6	Type of course	What should be emphasized and how to address the sub-factors?	
7	Faculty involvement	When, where and how faculty should be involved in the learning process to improve facilitation and class management? How and what are considered as adequate involvement?	
8	Off class dialogue	When, where and how to utilize the sub-factors to improve teaching and learning? What and how to motivate students participation?	
Element III. Delivery Technology			
Rank	Factors	Additional information	(1-4)
1	Accessibility	How, when and where could both faculty and students get, maintain and improve access to the class? What are the appropriate measures of accessibility to be taken?	
2.5	Tools - software & hardware	What and how the listed sub-factors can affect the efficiency and effectiveness of the teaching-learning process?	
2.5	Support needed	What and how the listed sub-factors can do to ensure the effectiveness of the utilization of delivery tools to enhance teaching and learning?	
4	Operational cost	How delivery technology can impact cost and affect the effectiveness of learning and teaching?	

Element IV. Faculty Delivery/Teaching Preferences			
3 rd Rank	Factors	Additional information	New rank (1-5)
1	Purpose of teaching	How to achieve and what can be done to maintain or increase the sub-factors?	
2	Faculty needs and supports	How teaching can be facilitated and what can be done to increase faculty commitment within the "limited" supports as listed in the sub-factors? Why and what could effect faculty commitment?	
3	Faculty characteristics	How teaching quality and faculty commitment can be maintained or improved based on the listed sub-factors?	
4	Course management	Why and how the listed sub-factors could affect faculty teaching process? What and how to improve faculty performance?	
5	Distance learning knowledge	Does faculty performance affected by this factor? How to determine and what can be done to increase faculty performance?	
Element V. Students' Learning Preferences			
Rank	Factors	Additional information	(1-5)
1	Learner characteristics	What and how teaching can be facilitated to serve different characteristics of learners?	
2	Students' needs	What and how teaching should be administered to serve the listed sub-factors?	
3	Students' learning style	How should teaching/instructions be managed and delivered to accommodate the sub-factors?	
4	Learner interest or favor	How to determine and what to be included or excluded in the teaching process to enhance learning?	
5	Computer skills	How and what should be done to increase students participation in the learning due to lack of computer skills?	
Element VI. Technological Skills.			
Rank	Factors	Additional information	(1-5)
1	Support needed	What, when, where, why and how the sub-factors can/able to do for effective teaching-learning?	
2	User experience	What technological skills and knowledge are needed for effective teaching-learning, and how to improve or upgrade them?	
3	Distance Learning experience	What, how and when this factor could be utilized and be developed, improved/upgrade to enhance teaching-learning process (class management)?	
4	Personal knowledge acquired	To what extent and how frequent this factor should be addressed to enhance teaching-learning?	
5	Feedback tools utilization	Do faculty and students familiar with delivery tools? What, when, where and how to improve/ upgrade skills for effective class management?	
Element VII. Students' Evaluation			
Rank	Factors	Additional information	(1-6)
1	Quality of assessment	What are needed, how and when to administer, and where should be implemented to ensure quality assessment?	
2	Types/Methods of feedback	Who, what, when and where the sub-factors are relevant? How to administer effectively?	
3	Accountability of assessment	How, where and what should be done to ensure accountability?	
4	Interactivity of assignment	To what extent the assignment should address the sub-factors, and how it can de done?	
5	Format of assessment	Should address the issue of relevancy of assessment based on context, content & time? How to do and what should be emphasized?	
6	Ease of management	How user-friendly the interface layout (ease of navigation) and to what extent this would help faculty/students manage their assignments?	

Element VIII. Course/Faculty Evaluation			
3rd Rank	Factors	Additional information	New Rank (1-3)
1	Faculty teaching	Address the issue of effectiveness and capability of faculty to transfer teaching skills. What, when, where, why and how to adjust?	
2	Faculty/course management	Address the issue of transferring/transforming knowledge, skills and subject matter expertise in traditional classroom into online environment.	
3	Cost-effectiveness	Address the issue of effectiveness of the course content and class management to a diverse group of students.	

Optional Questions:

1. What do you think about the possibility of online learning in the future context of Workforce Teacher Education programs in the USA? Check one.

- Becoming a main stream. Gaining popularity.
 Remaining as it is. Becoming less popular.

2. If this study is presented to Workforce Teacher Education programs faculty, do you think the results of this research would have any influence on how they handle their online course/distance learning in the future?

- Very strongly. Strongly. Moderately.
 Little. No effect at all.

3. If the faculty at Workforce Teacher Education programs were given this strategy to develop their online course, what would be impacted most by this strategy? Check all the necessary answers

- Planning. Designing. Developing.
 Implementing. Evaluating.

4. Would you like to receive a digital copy of this study?

- Yes. No.

Check the appropriate chapter(s) that you need

- All Chapters. Methodology.
 Findings/Results. Discussion/Conclusion.

APPENDIX K

MATRIX FORMAT

Name of Element: _____

Respondents	Suggestions (Factors or Sub-factors)								
R1									
R2									
R3									
R4									
R5									
R6									
R7									
R8									
R9									
R10									
R11									
R12									
R13									
R14									
R15									
R16									
R17									
R18									
R19									
R20									
R21									
R22									
R23									
R24									
R25									
R26									

APPENDIX L

RESULTS OF ROUND ONE SURVEY

RESULT OF THE ROUND ONE SURVEY

1. Purpose of teaching
2. Faculty comfort level, attitude, motivation
3. Teacher's knowledge of distance classes
4. Management of the course
5. Availability of equipment
6. Teaching and learning strategies
7. Classroom management
8. Pre-planning and scheduling
9. Interactivity for active learning
10. Number of remote sites
11. Professional development for instruction
12. Time management for faculty
13. Hardware/software compatibility
14. Length of class period
15. Accountability of assessment
16. Learner accessibility
17. Level of interaction
18. Instructional design
19. Students and faculty interaction
20. Lesson objective/content/competencies/ static-dynamic
21. Type of students, maturity, attitude, number, and characteristic
22. Demand for the course
23. Frequency of dialogue
24. Faculty load time
25. Incentives for faculty
26. Asynchronous students activities
27. Student-to-student interaction
28. Timing of feedback to students
29. Synchronous element for the course
30. Online materials age/maintenance
31. Emphasize on off line media
32. Site coordinator/facilitator
33. Online resources/reference materials
34. Building community of learning
35. Various communication tools
36. Accessibility to students with disability
37. Students maturity level
38. Group works
39. Faculty training/orientation
40. Individual feedback
41. Communication styles
42. Course integrity, sequencing, determination, and rigor
43. Support staff, technical, organizational, administrative, and instructional design

APPENDIX M

RESULTS OF ROUND TWO SURVEY

RESULTS OF THE ROUND TWO SURVEY

- | | |
|--|--|
| 1. Students characteristics | 20. Motivational/attitudes |
| 2. Target audience | 21. Time availability |
| 3. Cultural background of the learner | 22. Faculty support and reward structure |
| 4. Accessible to visually impaired students | 23. Off class dialogue |
| 5. Course contents | 24. Open entry and exit |
| 6. Prior experience with distance learning | 25. Students interaction and instruction |
| 7. Training of interaction | 26. Desired student-student interaction |
| 8. Course development assistant | 27. Ease of navigation |
| 9. Learning styles | 28. Type of feedback needed |
| 10. Syllabus and Course outlines | 29. Students assessment methods |
| 11. Interaction with instructor | 30. Out-of-state certification |
| 12. nature of the course | 31. Frequency of assessment |
| 13. Required versus selective | 32. Level of knowledge assess |
| 14. Administrative support | 33. Types of assessment |
| 15. Occupational placement | 34. Quality of assessment |
| 16. Discipline or fields | 35. Personal knowledge about technology |
| 17. Course contents with technology | 36. Compatibility of software |
| 18. Regulatory or requirements | 37. Teachers' computer proficiency |
| 19. Teacher and students technology experience | 38. Students gaining computer skills while taking course |
-

VITA

2

Yahya Mat Som

Candidate for the Degree of

Doctor of Education

Thesis: A PLANNING STRATEGY FOR THE DEVELOPMENT OF ONLINE COURSES FOR WORKFORCE TEACHER EDUCATION PROGRAMS

Major Field: Occupational and Adult Education

Biographical:

Education: Associate of Teaching Degree, Technical Teachers Training College, Kuala Lumpur, Malaysia in April 1982 with the specialization in Refrigeration and Air-Conditioning, Professional education, General education, and Clinical training; Bachelor of Science Degree in Technology with Education, University Technology of Malaysia, Skudai, Johor, Malaysia in May 1991 with the specialization in Mechanical Engineering with Teaching; and Master of Science Degree in Occupational and Adult Education, Oklahoma State University, Stillwater, Oklahoma, USA in July 1997 with the specialization in Technical Education. Completed the requirements for the Doctor of Education degree with a major in Occupational and Adult Education in July 2000.

Experience: Technician for Radio and General Company, Malaysia; Air-conditioning and Refrigeration Instructor and Head of Unit for Kota Kinabalu Vocational School, Alor Star Vocational School, Bentong Vocational School, and Ungku Omar Polytechnic, Malaysia; and Graduate Research Associate and Technology Support Assistant for the College of Education, Oklahoma State University.

Professional Membership: ED-MEDIA International; Society for Information Technology and Teacher Education (SITE); International Vocational Education and Technical Association (IVETA); Association for Career and Technical Education (ACTE); and Oklahoma Vocational Association (OVA).