A FEASIBILITY STUDY FOR SPECIALIZED TRAINING OF FARM BUSINESS AND PRODUCTION MANAGEMENT STUDENTS AT WESTERN WISCONSIN TECHNICAL COLLEGE

by

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ABSTRACT

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The purpose of this study was to determine the interest and potential effectiveness of distance education delivery methods for specialized training for farm production workers in the Western Wisconsin Technical College (WWTC) District. The agricultural sector has a long tradition of using different forms of distance learning. As technologies such as Web-based learning and Interactive Television have evolved, distance learning is a more viable alternative for training.

The research shows that distance learning if delivered effectively is equal in effectiveness to traditional delivery methods. It is important that the student have ready

access to the proper computer hardware and software to utilize web-based learning. Over fifty percent of farm production units in Wisconsin have a computer and access to the Internet.

The method used to determine both the interest and the skills and tools that potential students of distance education initiative possessed, the 310 students of the WWTC Farm Business and Production Management (FBPM) program were surveyed. They were polled on their interest in specialized training, what skills related to distance learning they possessed, and how would they accept distance education delivery methods.

The survey was sent to all 310 FBPM students enrolled at WWTC during the 2000 – 01 school year. Ninety-four surveys were completed and returned resulting in a 30 per cent return rate. Fifty nine percent of the respondents indicated an interest in additional specialized training and agreed that continued training is important to their future success. The highest rated training interests were traditional farm production topics such as dairy and crops and management topics, for example farm management and personnel management. Three fourths of the respondents have access to the Internet but these same individuals rated interest in interactive television low.

If distance education is to be used for this desired specialized training, computer based delivery may be the best alternative. Traditional farm production topics will have the most acceptance by the largest number of individuals, while specialized topics may be the most efficiently delivered because of the smaller number of potential participants spread over a wider geographic area.

Because of the interest and need in additional specialized training, distance education should be considered. An action research approach for determining the delivery

method's effectiveness could be implemented. Both traditional farm production topics and specialized topics could be initiated to determine the viability of each.

Acknowledgements

I would like to express my sincere appreciation to all of the individuals who provided assistance during the completion of this study. I would like to especially thank Rich Westphal, associate dean of the Industrial Technologies Division for both his support and help in compiling the list of farm business students used in this study. Thanks also to Terre Von Haden, administrative assistant of the WWTC Industrial Division, for her valuable assistance in constructing and mailing of the survey. I would also like to recognize the Farm Business and Production Management instructors for both their input for the survey and also their assistance in encouraging their students to participate in this study. I would also thank James Gibson, Agriculture consultant for the Wisconsin Technical College System for his wise insight.

I would also like to recognize my advisor, Joe Benkowski for all of his advice and contribution into both this research project and my entire master's program. Many times along the way his influence and encouragement made it possible for me to continue.

Last, but surely not least I must recognize Betty my wife, friend, and biggest supporter for this project and the entire master's program. Her undying belief in my abilities and in me both encouraged me to attempt this program and sustained me through the past two years. I really appreciated her helping me write in a clear and concise manner that is both understandable and grammatically correct. Thank you from the bottom of my heart!

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Chapter 1

INTRODUCTION

Background of the Problem

Western Wisconsin Technical College (WWTC) is one of sixteen Wisconsin technical colleges charged with the mission of training for local businesses and industries. The WWTC district serves the continued learning and training needs of residents within all or part of ten counties in western Wisconsin. One of the main economic resources for the district is agriculture and agricultural products, according to the Economic Research Service of United States Department of Agriculture (1998). Designing continued specific training for people that are actively working in agriculture offers some significant challenges when education planners consider: 1) the low numbers of potential students in a specific geographical service area, and 2) the amount or blocks of time that is available because of seasonal and weather-predicted peak times for these workers to pursue further education and training. One of the ways these challenges were addressed in the past was with some form of distance learning where the training was offered in a setting other than a traditional classroom teacher-student situation. The question to be addressed for today's agricultural career learner is: With the rapid advances in technology, can distance learning play an even more significant role in this training?

University Extension has utilized distance learning for off-campus students since the early 1900s, according to an article by Paul Wilson in the American Journal of Agricultural Economics (p. 990). The distance learning training opportunity at that time consisted of correspondence courses, where the instructor sent out the coursework to the

student and the student would complete the lessons and return them to the instructor. Extension distance learning courses originating from state land grant colleges or universities such as the University of Wisconsin College of Agriculture, many of the courses during the 1960s and 70s consisted of a one-way audio or audio/video, or a two-way audio educational telephone network (ETN). New digital technologies have created new potential for educational environments and distance learning. As referenced by Wilson (p. 990), Davis, Botkin, and Perelman predicted that educational environmental learning will occur in the global market, broader and deeper than anything seen to date and far more competitive. Wilson referred to Cairncross's statement that distance is dead, or at least dying. He believes students will choose location and medium when registering for a course or program of study. Learner-centered and customer-focused educational planning is the direction of many educational institutions, in response to competitive markets for learning sources and the time availability of the incumbent worker and learner.

The Wisconsin Technical College System (WTCS) member colleges conducted a statewide comprehensive needs assessment survey to determine the interest in training and further education for farm producers enrolled in the Farm Business Management program. The purpose of this survey was to create a guide, The Farm Management Education Task Force 2000 Strategic Plan, for individual college districts to use in planning for continuing education opportunities, particularly farm management training needs.

As agriculture becomes more technology infused, as agriculture markets expand, and as continuous learning opportunities for those in agricultural careers become more

eminent, several assumptions must be considered: 1) producers desire more training and education, 2) the number of agricultural sector jobs is expected to grow by 32% from 1998 to 2008, 3) the type of the training must be of interest and pertinent to the needs of the potential learner, and 4) the future learner must be able to participate in this training and evidence success in mastering the competencies in the learning experiences.

Statement of the Problem

The main purpose of this research is to determine if agricultural producers desire additional specialized training that they are not now receiving, are they suited for distance learning, and will they choose distance education as an alternative to receive this training.

Research Objective

Three areas of concern addressed in the WTCS farm management student survey report were: 1) opportunities for networking, 2) exposure to new technologies, and 3) expanding the variety and selection of education topics. The scope of this research paper will further these concepts, addressing in greater depth both the exposure to new technologies and expanding the variety of education topics. In addition, the attitudes of potential students towards different forms of distance learning and its role in this further training will be researched.

The researcher will be using the results to determine the interest and the needs of additional training courses and to determine how distance education, in a broader definition involving all current technology for delivery, could play a role in that training. The main objective of this paper is to ask the question, “Can the training needs of agricultural workers be satisfied using distance learning?”

Three concepts will be explored as a framework for this research. The compelling questions will be: 1) Will the intended learners be willing to participate in distance learning to get the desired training? 2) Will they have the skills and tools necessary to learn in the distance learning setting? 3) Will they learn and be able to achieve the competencies in the distance-learning environment? A research survey will be developed to research questions one and two. Question three will be addressed by an opinion poll for user prediction of success in learning through distance delivery. The actual assessment of learning goes beyond the purpose of this paper, but the assessment tools used by WWTC will be recommended to position qualitative studies for planning purposes and future research.

Significance of the Study

This research study is beneficial to WWTC and other WTCS districts so that they can better plan outreach education programs and offers to incumbent farm workers and managers.

Definition of Terms

Distance learning. A method of education in which the learner is physically separate from the teacher. It may be used on its own, or in conjunction with other forms of education, including face-to-face (Rumble, 1986, p.1).

Distance learner. Learning environment where learners are physically separated from the institution that sponsors the instruction (Rumble, 1986, p.1).

Multimedia. Disseminating information in more than one form. It includes the use of text, audio, graphics, and full-motion video. Multimedia programs are typically games,

encyclopedia, and training courses on CD-ROM. However, any application with the sound and/or video can be called a multimedia program (Alan Freedman, 1996, p. 561).

Technology. The science of the application of knowledge to practical purposes (Gove, 1961, p. 2348).

Traditional face-to–face classroom. Learning environment where students and professors interact with each other in the classroom including lecture, presentation, and answering questions (Opposite to distance learning, Rumble, p.1).

Web or World Wide Web. An Internet service that links documents by providing hypertext links from server to server. It allows a user to jump from document to related document no matter where it is stored on the Internet. World Wide Web client programs, or Web browsers, such as Mosaic and Netscape, allow users to browse "the Web." Developed at the European Center for Nuclear Research (ECNR) in Geneva, it was created to link research information between different locations. WWW documents are structured with format codes and hypertext links using the hypertext Markup Language, or HTML. A home page is created for each server with links to other documents locally and throughout the Internet. The Web has become a centerpiece of Internet activity, because its documents can contain both text and graphics, and it is quickly turning the Internet into an online shopping mall. In 1994, Web traffic increased more than 18 times that of the previous year. (Alan Freedman, 1996, p. 970).

Interactive Media. Frequency assignment that allows for a two-way interaction or exchange of information (http://www.uidaho.edu/evo/dist13.html).

Limitations of the Study

This study is limited to the Farm Business and Production Management students at Western Wisconsin Technical College. There are 308 students that were enrolled in the program for the 2000-2001 school year. Others involved in agricultural production that are not enrolled are not a part of this study.

Chapter 2

Review of Literature

Scope of the Research

Distance learning has been an alternative for students wishing to attain new training and skills for over one hundred years. Agricultural training has been offered using distance learning because of the difficulty of the students to attend traditional classroom settings because of both distance and adequate time. Technology has changed dramatically in the last twenty years making distance learning a more viable alternative.

When reviewing the literature, the researcher evaluated what has been written on the subject of distance learning in three areas. The first was would potential students in the agricultural field be willing to choose distance learning as a viable way to acquire desired skills and training? Second, will the potential learner have the skills and tools necessary to be successful using distance learning? And third, will the learning through distance education be satisfactory when compared to traditional face-to-face learning environments? There is very limited research published concerning the willingness of potential students to participate in distance learning and whether they would have the necessary skills and tools. Both of those topics will be explored for the desired population through a quantitative survey. There has been an extensive review of research concerning the effectiveness of distance learning.

Because of the limited information concerning students that are involved with agriculture much of the research is based on students in other disciplines. It is the author's assumption that much of the research is applicable no matter the subject matter

and program of study. Therefore the results of this research, regardless of the discipline are assumed to be pertinent to this study.

Historical Context

In the early 1900s, following World War I, technological advancements helped to stimulate the growth of distance learning. The development of radio and television during that time helped impact the delivery methods used in education. During the 1920s, the University of Wisconsin developed three experimental stations to test the effectiveness of radio as a public broadcast medium. The University of Iowa also followed by combining written correspondence courses with educational programming (Nofsinger, 1926). The National Association of Educational Broadcasters was also formed in the 1920's (Chester & Garrison, 1950).

Television stations began broadcasting educational programs in 1948. Iowa State University was the first educational institution to own and operate its own television studio that provided educational courses (Chester & Garrison, 1950). There were 242 television stations reserved for educational purposes by 1952. In 1959, the University of California began broadcasting a program entitled the "Continental Classroom" (Sherow & Wedemeyer, 1990). At that time science courses were taught through the broadcasts and supplemented with written correspondence study materials.

In view of the fact that distance education originated with the concepts of correspondence study, many people involved with education still link distance education to correspondence courses. Keegan (1986) links distance education to correspondence study because the student is physically separated from the teacher and learns independently. However, higher education scholars link distance education to

telecommunication technologies. The restructuring of a definition for distance education has resulted in the inclusion of new technologies that can benefit distance learning and guide the research needed. According to Barker, Frisbie, and Patrick (1989), distance education refers to "the simultaneous telecommunicated delivery of instruction from a host site or classroom to distant sites, coupled with live audio and/or video interaction between teacher and student(s)—not to correspondence study" (p. 21).

Distance education has evolved into a method of providing education as well as a means to give the college or university the capability to go beyond the classroom walls to reflect the changing needs of today's potential learner. The key to understanding and utilizing distance education lies within communications capabilities (Garrison, 1990). These capabilities can help facilitate teacher/learner interaction. Larsen (1985) indicated that educators must develop a strong understanding of communication interactions to stay current with advancing technologies or they (educators) will not be prepared to efficiently use the technology.

Garrison (1990) described distance education technologies based on their communication characteristics, and also categorized the technology into one-way and two-way systems. Two-way communication has made the most significant impact regarding the design and delivery of education at a distance by providing educators with an opportunity to further understand the educational transaction required to personalize instructional content and direct it to specific groups and individual students. Two-way communication includes three different generations of distance learning: 1) correspondence (print) study, 2) computer-based instruction, and 3) telecommunications or audio and video teleconferencing (Garrison, 1990). However, telecommunications

technology is the most essential part of a distance education system because it utilizes two or more kinds of communication to link the student and his or her mentor (Rumble, 1986). Two-way telecommunications channels may include: 1) telephone, 2) cable, 3) fiber optics, and 4) satellites.

In the past audio and video teleconferencing has been seen to provide the most interaction between instructor and the learner because it allowed groups to explore and convey curricula and provide informal evaluations concerning student progress. Barker, Frisbie and Patrick (1989) noted that:

> Without question, telecommunications is an effective teaching means…..when an audio and video communications link is employed, the opportunity for live teacher/student exchanges in real time is possible, thereby permitting immediate response to student inquiry and comments. Much like a traditional classroom setting, students can seek on-the-spot clarification from the teacher (pp. 23, 26).

In contrast to correspondence study, telecommunications does more than focus on an individual student because it also focuses on small groups at different locations, thus creating a network. This is a benefit to all because it increases both communication skills and socialization. Garrison (1990) noted that the use of telecommunications in distance education "marks a new generation in designing the educational transaction" (p. 43). Zemke (1986) proclaimed telecommunications, primarily video teleconferencing as the instructional technology of choice in the 1990s.

This Studies Significance

This study is being conducted as a follow-up of the Wisconsin Technical College System (WTCS) Farm Management Education Task Force Strategic Plan 2000 conducted on March 31, 2000. The executive summary of this Task Force identified several areas of need based on the participants' inputs. The needs include opportunities for farm

producers to network, exposure to new farm technologies, and expansion of variety and selection of courses that are pertinent now. The interest was in short, for more focused sessions utilizing industry experts. If these needs were to be addressed with distance education, the ability to interact with the instructor and other class members would be necessary.

Will They Choose Distance Learning?

For a potential student to choose any form of educational delivery for desired training or education they must have confidence in the system. With the amount of technology available to everyone at the present time, it is doubtful that potential students would reject distance learning on the basis that it is different than the traditional classroom situation. The bigger question would be "Can I get the training that I desire?" The curriculum that is being used and the pedagogy implemented are more important than the delivery system.

For any continuing education or training to be worthwhile to students it must deliver value for both the time and money invested. Janet Poley theorized that the learning needs of students must be met to guarantee that distance learning will be chosen and in the end be effective for the learner. She also stated that for institutions to effectively deliver learning at a distance that investment in technology must be incorporated into their educational plans. In addition creative faculty must be hired and institutions need to develop niches of expertise where there is a real desire for the particular training and the school has the ability to deliver that training (American Journal of Agricultural Economics 1998).

A question that may be asked is who is more hesitant to embrace distance learning, students or colleges and universities? Poley (1998) also discusses the need for agriculture educators to design and teach in new ways, with the focus of all education to be learner centered throughout their lifetime. This can be daunting for institutions and faculty that are comfortable with the status quo. Each educational institution has to decide what role, if any, alternative delivery of education will take, with the understanding that in the competitive environment that education finds itself today, if these alternatives are viable some other public or private education institution will fill the need.

The National Center for Educational Statistics reports that in 1997 of the 14.3 million students enrolled in college, 750,00 students were enrolled in distance education courses. With the improvement of video and computer technology these numbers will undoubtedly increase. There is no reason to believe that people involved in the agricultural industry will be less likely to participate in distance education than any other sector, in fact given the long history of correspondence courses and audio training it could be hypothesized that they would be a larger user than the general population.

What kinds of attributes help ensure that distance-learning students will be successful? The University of Idaho reports research suggests students bring certain basic characteristics to their learning experience will be more likely to be successful. Some of these traits for success include: students are highly motivated and self-disciplined, usually older and have the willingness to initiate calls to instructors for assistance. It could be argued that these same traits are important in traditional settings, but are more significant in a distance environment.

If prospective students working in agriculture want specialized training and are willing to participate in distance education delivery, will they get the desired results, or in other words, will they learn? Peter Navarro and Judy Shoemaker (2000) conclude that distance learners can learn as well as or better than traditional students regardless of the learner's characteristics such as gender, academic background, computer skills, or academic aptitude. When offering courses through web-based methods success is more reliant on other features such as: multimedia lectures that stimulate the classroom experience; an interactive threaded electronic bulletin board; online discussion groups; and electronic testing with immediate feedback. These findings indicate that the actual instruction and how the pedagogy employed is more important than the characteristics of the potential learner.

If the delivery of agricultural training is to be successful and the students are to learn, the courses must be in areas that agricultural workers have an interest and want to improve their expertise. Furthermore, how the instructor perceives his or her role as the educator and the techniques that they use in instructional delivery will be more important than the learner's characteristics. Parer (1988) contended that educational institutions must offer training for academic faculty and staff in the necessary skills for distance education. Dillon (1989) suggested that campus wide faculty development programs be expanded to include instructional telecommunications and focus primarily on mentoring, effective communications between the student and the instructor, and how to increase the influence of the instructor.

Whiting (1987) reported that distance educators must be more than just "talking heads." He indicated that instructors must provide an interesting pace to distance

education courses and programs, i.e. use a variety of audio and video materials and pre-produced segments. Whiting also noted that television production greatly improves the teaching skills of faculty because it forces them to become better communicators by molding wordy lectures into a specific time frame.

The literature suggests that educational institutions and their faculties must develop and more effectively use teaching skills in order to remain scientifically and technically up-to-date in contemporary society. Simerly (1990) found that college of agriculture faculty are interested in gaining new knowledge and skills which will enable them to be more effective in teaching, research, and community service. To be successful in distance education it is apparent that faculty and staff need to be properly trained in the delivery of either interactive television or web-based courses. Distance education offers faculty an opportunity to teach desired courses, and motivate learners, while taking advantage of new and exciting modes of delivery in a very competitive environment.

Conclusion

Distance education has a long and storied history in agricultural circles. The nature of farming necessitates approaches that deliver training and educational updates in a nontraditional manner. Because of the distance between producers interested in specialized training and their proximity to instructors and educational institutions remote learning must be utilized. Technology advancements of the last several years have changed distance learning from correspondence courses to interactive television and web based learning.

Just as when training was delivered through correspondence courses, the new technology has its own challenges. No matter what the mode of delivery, the student still

has a need to be able to interact with the instructor and also other students. Certain learner characteristics are important in both traditional and distance learners. The motivation to use distance education as a means to attain desired training is an important ingredient of success.

Research has been continuing, trying to determine the nature of education and training desired by agricultural producers. If there is a need, an interest, and access to this learning, will they participate? History tells us that agricultural producers will take advantage of distance learning opportunities. That being the case, it is necessary that learning occurs. History tells us that learning is dependent on the instructor and the methods he or she uses to deliver the training.

Chapter 3

RESEARCH METHOD

Introduction

Distance education has been a staple for training in agriculture for many years. The changing technology and the lack of concentration of students makes distance education appealing. Potential students taking these distance courses must be identified, their characteristics defined and their interest in courses known. Knowing the learner's characteristics and interests would be a benefit when planning and implementing distance education courses.

The Purpose of Study

Western Wisconsin Technical College (WWTC) is committed to delivering needed training to people that reside and work in the district. The district presently has 310 students enrolled in the Farm Business and Production Management (FBPM) Program, with four instructors and four technicians delivering a pre-determined curriculum and on-farm services. The researcher used a survey to determine if there was an interest by these students to get further specialized training utilizing distance education and what topics would be of interest.

Population and Sample

The researcher used WWTC's enrolled students in the FBPM Program. Based on the size of the population, all 310 enrollees were included in the survey. The names and addresses were obtained from the class roster for the FBPM Program for the 2000-2001 school year.

The Information Obtained

The WWTC district encompasses all or parts of ten counties in Western Wisconsin covering nearly one hundred square miles. Within the district there are seven campuses that house an interactive television studio and computer labs with Internet connection and available to students.

The purpose of this study was to determine the interest of potential students in distance education, some of the skills and characteristics these potential students possess, and topics that would be of interest to them. The survey was broken into three areas. The first, included the population's interest in additional specialized training and the demographics of these students. The second portion of the survey centered on the characteristics of the potential learners as they relate to distance from interactive television sites, their learning style and computer use. The third and final portion of the survey dealt with interest in a variety of topics that could be offered through distance education. This survey was developed to determine whether these agricultural producers are interested in further training, if distance delivery is suitable, and what topics would attract these potential students.

Instrumentation

After the population was identified and the sample size determined, the next step was to design a questionnaire to obtain the desired information. The questionnaire is made up of two parts, the first including demographic questions with either yes or no answers and choosing the appropriate descriptors of the person being surveyed. The second portion of the survey respondents are given questions to answer using a five point

Likert scale that indicates preferences of learning styles and possible training topics and their experiences in using computers.

The researcher developed the survey to obtain the desired information. After it was developed industry experts were consulted to review and make suggestions regarding both the content of the survey and the flow of the questions. After the final draft was developed, the survey was sent to the eight industry personnel to be completed and returned to the researcher for any unforeseen problems with the format and clarity of the questions.

The Methodology and Procedures

Three hundred ten questionnaires were mailed, using WWTC's FBPM class roster for the 2000-01 school year. A cover letter was included explaining the background of the study and how some of the information could be used to help improve educational delivery. The four instructors and four technicians were instrumental in encouraging students to take the time to fill out the survey and return it. Each mailing also contained a postcard that was returned to the researcher after they had completed the survey, so that those that did not return the survey could be identified and were sent a follow-up letter to encourage completion. When analyzing the results, both the mean and standard deviation were used.

Methodical Assumptions

The research assumes:

1. people answered the survey honestly.
2. the respondents were able to read and understand the questions and statements in the survey

3. the statistical tests were conducted accurately.
4. the collected data was a reflection of the respondent's attitudes and not biased by other respondents of the sample population.

Limitations of Methodology and Procedures

The limitation of this study is due to surveying only the students enrolled in the FBPM course at WWTC.

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Chapter 4

Results

Review of the Problem

The purpose of this study revolved around three major questions. Will agricultural workers seek additional training? If they do desire this additional training, will they be interested in distance methods and will they have the skills and tools to use distance learning if they so desire? This study was predicated on information gained through a statewide study involving students enrolled in the Farm Business and Production Management Program (FBPM) offered By Wisconsin Technical College Schools (WTCS).

The Farm Management Education Task Force 2000 Strategic Plan determined that there was interest in additional training among a majority of the students. The information was derived from a focus group of students from each of the technical colleges that offer the FBPM Program. No demographic information or proposed methods of delivery were reported in that study.

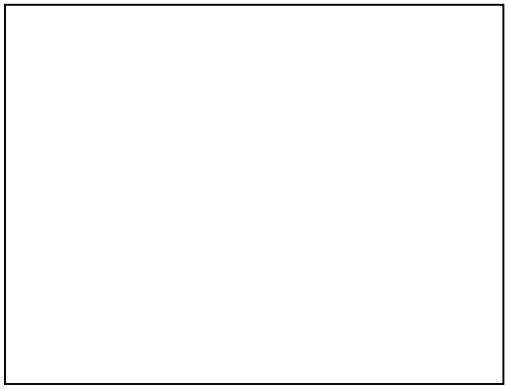
Survey Response Rate

The Survey was sent to 310 students enrolled in the FBPM program in the 2000-01 school year. Ninety-four surveys were returned resulting in a return rate of 30%. Of that total, 68 were returned without a reminder, and the remaining as a result of the follow-up postcard.

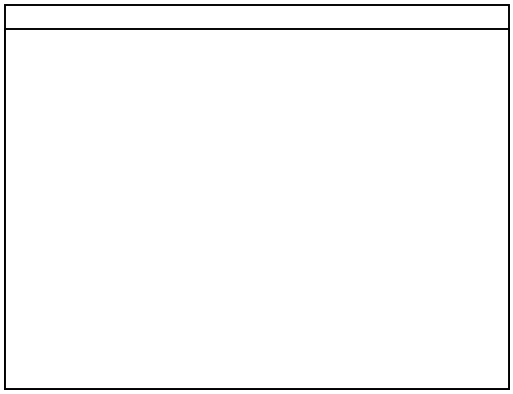
Demographics

The demographic information indicated that approximately 83 percent have farmed more than ten years. Fifty seven percent of the respondents are over the age of

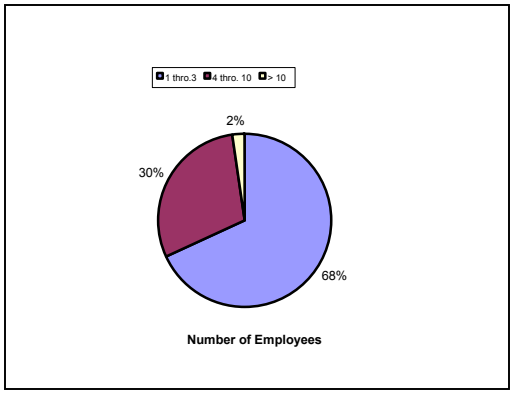
41. Of the producers, ninety eight percent have 10 or fewer employees. See charts 4.1, 4.2, and 4.3.



4.1 Number of Years Farming



4.2 Age of Principle Manager



4.3 Number of Employees

Farming Goals

The participants were asked if they would be interested in additional training above what is offered in the Farm Business and Production Management program. Fifty nine percent indicated interest in additional training. When asked if a degree was desired, 90 percent said “no”.

When asked to describe their farming goals, 30 per cent responded that they favored expansion for economic success. Almost one third indicated they were not planning any changes in their operation as 14 percent selected “survive until retirement” and 18 per cent selected “anticipating little change”. Twenty seven percent responded that their main goal is to have a favorable environment to raise their family. As a second choice, 29 percent responded that a “favorable environment to raise a family” would be a goal for their operation. Eleven percent chose the “other” response with variety of reasons. (See Appendix C)

Computer Access

When asked about the availability of a computer in their home, 59 percent indicated that they have a home computer and 85 percent have computer access on their

farm, with 74 percent having access to an Internet connection. The respondents were asked to rate their experience with five different computer skills. The responses are reported in Table 4.1.

Table 4.1:

0 = No basis for response
1 = Novice
2 = Occasionally
3 = Frequently
4 = Daily

How would you rate your experience.	Mean	Standard deviation
Farm management programs	2.27	1.07
E-mail	1.69	1.39
Word processor	1.34	1.16
Internet	1.96	1.38
Web based training	.86	.94

When analyzing the familiarity that these respondents have overall with the different forms of computer applications, there is a wide range in the level of experiences. Even though the mean for using farm management programs indicates occasional to frequent use, with a standard deviation over one (1.07) many of the respondents had either frequent use or little to none, making it difficult to make definite assumptions. The same can be said for the use of e-mail, word processing and the Internet, as the standard deviation is well over one. One could assume very low experience overall for Web-based training since the mean was only .86 and the standard deviation at .94 indicates that this level was consistent throughout the population.

Attitudes and Interests

Using a Likert Scale, the participants were asked to rate several modes of learning, interest in delivery methods and indicate their distance from the WWTC campus. The results of this are reported in Table 4.2.

Table 4.2:

0 = No basis for response
1 = Strongly disagree
2 = Disagree
3 = Agree
4 = Strongly agree

Describe your preferences.	Mean	Standard deviation
I enjoy viewing videotaped lectures.	2.35	1.09
I like to read.	3.03	.93
I like to take part in class discussions.	3.15	.73
I like independent learning.	2.98	.78
I am within 20 miles of a WWTC campus location	2.93	1.22
I would like to participate in interactive television training.	1.97	1.13
Continued education is important for my future success.	3.24	.92
I like “one on one” instruction instead of group instruction.	2.41	1.04

When reviewing this data the respondents rated liking to read, class discussions, independent learning and the importance of continued training as being important to their success high, and this was consistent throughout the population as the standard deviation was well below one. In the converse, viewing videotaped lectures, interactive television and one on one instruction had a wider range of preference responses evidenced by a standard deviation of over one. A high number (2.93) indicated that they are located

more than 20 miles from a WWTC campus, again with a large variance indicated by the large standard deviation of 1.22.

Training Interests

To determine the interest in additional training, the participants were asked to quantify the level of interest in 18 different topics, with an opportunity to offer their own choices not listed by including an "other" category. Again a Likert Scale was used to determine the degree of interest with selection of "no interest" to "very interested". These results can be seen in Table 4.3

Table 4.3:

1 = No interest
2 = Somewhat interested.
3 = Little interest.
4 = Very interested.

What types of training would interest you?	Mean	Standard deviation
General agricultural topics.	3.26	.91
Livestock	3.66	.65
Crops	3.59	.70
Farm management	3.44	1.0
Organic or sustainable agriculture	2.63	1.07
Dairy	3.48	.97
Personnel management	2.96	1.08
Marketing	3.36	.82
Value-added agriculture	3.02	.90
Farm business financial analysis	3.33	.86
Nutrition	3.38	.83
Precision farming	2.56	.94
Fruit and vegetable production	1.66	.81
Calf and replacement raising	3.43	.87
Integrated management	2.96	.94
Risk tolerance	3.01	.78
Farm transfer to the next generation	2.93	1.01
Farm based sales of agricultural products	2.78	1.00

Traditional agricultural production topics were the highest rated. The interest in dairy, livestock, and calf raising, along with marketing and farm business topics rated high with the majority over three and a standard deviation of less than one. Specialized topics such as organic farming, farm based sales and fruit and vegetable production rated lower, with a wider variance of responses indicated by a standard deviation in each case of over one. The tried and true topics have the widest level of acceptance, but some of the specialized themes drew quite strong interest for a smaller part of the respondents.

Five percent of the respondents indicated the additional response number 42 of "other" topics to recommend. Some suggested topics included "disease control of livestock" and "transferring the business to the next generation". All "other" responses are in Appendix D.

Summary

The overall responses indicate an interest in additional training for a majority of the respondents, but there is little interest in further degrees or certificates. A majority of the population has been involved in farming over ten years and could be described as being middle-aged or older. About a third of the respondents are planning little change in their operation. Thirty percent indicated expansion of their operation as a viable option.

Over 85 percent have access to a computer with 75 percent of the respondents having access to the Internet. The level of skills using the computer is lower than might be expected. The responses indicated a variety of preferences for types of learning experiences, with a slight preference toward the more traditional delivery.

The results of the survey indicated an interest in a need for additional training, particularly in management of livestock and crops for production agriculture. How to meet these needs will be discussed in Chapter 5.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

The Purpose of the Study

This study does not give a definite recommendation as to whether farm production managers and their employees would be best served with distance education for advanced training relative to their business goals. It could, however be used as one source of information or a model of the process for determining how the need for, and the type of delivery of advanced training could be addressed.

The agricultural industry has a rich tradition of distance education over the past 100 years utilizing correspondence courses, public radio broadcasts, two way audio communication and instructional videos. The options today include interactive television and computer-based instruction. The questions that need to be answered include: will they choose this method of learning, do they have the skills and attitudes necessary, and will they attain the desired learning.

Data Collection

The data collected for this study was gathered from the students enrolled in the Farm Business and Production Management (FBPM) program at Western Wisconsin Technical College (WWTC) during the 2000-01 school year. All 310 students were sent a survey designed to determine their skills, attitudes, tools and interests in additional training utilizing distance education. Of the 310 students that received the survey, 94 returned them for a 30 percent response rate.

The Results of the Study

When reviewing the results of this study, the first statistic that is interesting and meaningful is that 59 percent of the respondents desire additional specialized training. Of that number, 90 percent indicated that it would not be necessary for this training to lead to a degree or certificate. When reviewing the demographic data, over 57 percent of the respondents were 41 years of age or older and 83 percent have been farming over ten years. This may indicate an interest in sharpening skills and education on new concepts and innovations.

The potential for students to utilize distance education through computer-based learning is very good. Three fourths (75 percent) of the respondents have access to a computer in their home or office. In addition, almost as many (74 percent) have access to the Internet.

When asked about their preferences reflecting their attitude regarding different modes of training delivery, the respondents favored reading and class discussion (mean ranking of 3.03 and 3.15 respectively). A slightly less value (2.98) was placed on independent learning. The lowest rated response (1.97) indicates that interactive television is not a favorable option for learning .

Reviewing the responses indicating their frequency of using different computer programs and applications, respondents reported only occasional use. The use of farm management programs had the highest rating. Use of the Internet (1.96) and E-mail (1.69) were used sparingly by most of the respondents, with a wide range of answers indicated by the standard deviation of 1.38 and 1.39 respectively. Less use of word processing

programs (1.34) was reported. At this point in time, a very small number have had any experience using any form of web-based training.

The goals of these farm producers can be summarized into three areas: expansion, continuing as they are so they can survive until retirement, and raising their family in a good environment. Thirty percent described their farming goal as the need for expansion for economic success. A follow-up question that could be asked is, "Will this anticipated expansion necessitate more advanced training?" If expansion is necessary for these small operations (68 percent with 1 to 3 employees), what will be the acceptable delivery methods for the advanced training?

Fifty-six percent of the respondents listed their desire to raise their family in a good environment as either their only response or one of two. This could indicate a desire to make the necessary changes to stay competitive and viable for years to come. Possibly they would utilize the advanced training to make these changes since 59 percent showed interest in additional training and most of the responses (mean ranking of 3.24) agreed that continued education is important to their future success. One could theorize that specialized training would be of interest.

The third group (32 percent of the respondents) described by this researcher as the "survival/little change group" would be the least likely to choose additional training. Their indicated focus is to continue as they are as long as they can or until retirement, whichever comes first.

Eleven percent chose the "other" response (Appendix D) and indicated several choices for their goals. Several of the respondents indicated financial concerns such as:

- To be debt free and a positive farmer.

- Help future generations succeed in farming.
- Maintain a good living, while improving current operation.
- Retire with some money.
- Make money and have fun doing it.

Others indicated marketing of their products and the ability to match production with needs and concerns of the environment with the needs of the marketplace. Some examples of these were:

- Promote sustainable farming practices.
- Find sustainable niche markets.
- Sustainable Ag, sustainable forestry, environmentally friendly, organic crops, nutrient management.

The desired types of training, as indicated by the ranking of topics, were related to improvement of production agriculture and farm management. The three highest rated choices were livestock, crops, and dairy production improvement. The next largest area of interest was farm management, farm business financial analysis, and marketing. This summary could indicate that staying with the tried and true topics would be advantageous to attracting the largest number of students.

The more specialized the topic, the less interest evidenced in their choices. A good example of this is the interest shown in precision farming, organic farming, and fruit and vegetable production were on the low end of the spectrum. As the level of interest decreases, the number of potential students in a given geographic area also decreases, increasing the distance between potential students. The type of potential training dictates the viability of the method of delivery.

Conclusions

- A majority of farm producers desire additional training and believe that this training is important to their future success.
- If distance learning is to be a viable alternative to this desired training, use of computer based delivery must be explored.
- Traditional farm production topics will have the most acceptance for the Farm Business and Production Management (FBPM) students.
- Until interest in specialized topics increases, distance learning might be the most efficient delivery method.

Recommendations

If the delivery of specialized training to farm producers is to be pursued, distance education should be considered. Based on the findings, the researcher recommends that Western Wisconsin Technical College consider developing a course or courses that could be offered to the FBPM students. An action research approach for determining the delivery method's effectiveness could be implemented. The first step would be to develop a curriculum focusing on a desired topic utilizing computer based delivery, offer it to selected students, get their feedback on the delivery and learning, and make adjustments to the delivery and improve for the next time. Topics of high or specialized interest could be tried to determine if these factors would affect the acceptance of the delivery.

If agriculture is to remain viable and profitable, continuing education is required. Past experience suggests that if distance education is well designed and the learners are properly prepared, learning will occur.

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Appendix A

Cover Letter and Survey Instrument

WWTC Letterhead

William Brendel
2957 Broadview Place
La Crosse, WI 54601

July 31, 2001

Dear:

I am requesting your opinion. Would you be interested in additional training? What is the feasibility of your utilizing alternative forms of educational delivery, such as interactive television, Internet delivery, or some other form of distance learning?

Since you have been enrolled in the Farm Business and Production Management (FBPM) course from Western Wisconsin Technical College, your interest in continuing education is evident. The focus of the enclosed survey is to determine the interest in additional specialized training in agricultural topics.

Please take a few minutes to fill out the enclosed survey and return it to me in the self-addressed, stamped envelope by **September 28, 2001**.

Please note: Completing this survey is voluntary; your responses are strictly confidential; completing and return of the survey is considered applied consent.

Your opinions are valuable. If you have any questions about this survey, please call me at (608) 789-6256 or call Dr. Joseph A. Benkowski at (715) 232-5266. We would be most happy to answer and questions you might have. A summary report will be published at the end of this semester and available from the FBPM instructors.

Thank you for your assistance with this research.

Sincerely,

William Brendel

Enclosures: Survey
Self-addressed envelope
Self-addressed postcard

September 21, 2001
Western Wisconsin Technical College
Producer Training Survey

Circle the selection that best answers each question.

1. Would you or anyone in your operation consider additional training beyond the F.B.P.M. curriculum? Yes No

2. If **yes,** is it important that the training lead to a diploma or certificate? Yes No

3. Do you or a member of your family have regular access to a computer in your home? Yes No

4. Do you or a member of your family have regular access to a computer on the farm? Yes No

5. Do you or a member of your family have regular access to a computer in the office? Yes No

6. Do you and/or others in your operation have access to the Internet? Yes No

Check the appropriate box:

7. Number of employees, including family members:

   □ 1-3 □ 4-10 □ More than 10

8. Number of years farming, including working for someone else:

   □ 1-5 □ 6-10 □ More than 10

9. Age of principal manager:

   □ Under 30 □ 31-40 □ 41-50 □ Over 50

10. How would you describe your farming goal?

    □ Survive to retirement □ Expansion for economic success

    □ Raise a family in a good environment □ Continue with little change

    □ Other _____

Western Wisconsin Technical College
Producer Training Survey
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Describe your preferences by circling the number that best reflects your attitude about the following:

0 = No basis for response
1 = Strongly disagree
2 = Disagree
3 = Agree
4 = Strongly Agree

11.	I enjoy viewing videotaped lectures.	0	1	2	3	4
12.	I like to read.	0	1	2	3	4
13.	I like to take part in class discussions.	0	1	2	3	4
14.	I like independent learning.	0	1	2	3	4
15.	I am within 20 miles of a WWTC campus location.	0	1	2	3	4
16.	I would like to participate in interactive television training.	0	1	2	3	4
17.	Continued education is important for my future success.	0	1	2	3	4
18.	I like “one on one” instruction instead of group instruction.	0	1	2	3	4

How would you rate your experience using the following scale? Please circle one answer for each.

0 = No basis for response
1 = Novice—seldom or never use.
2 = Occasionally—less than 5 times total.
3 = Frequently—use 3 to 5 times per week.
4 = Daily—use on a daily basis.

19.	Farm management programs.	0	1	2	3	4
20.	E-mail.	0	1	2	3	4

Western Wisconsin Technical College
Producer Training Survey
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21.	Word processor.	0	1	2	3	4
22.	Internet.	0	1	2	3	4
23.	Web based training.	0	1	2	3	4

What types of training would interest you. Please circle the number that corresponds to the most correct answer for each topic.

1 = no interest 2 = somewhat interested 3 = little interest 4 = very interested

24.	General agricultural topics	1	2	3	4
25.	Livestock	1	2	3	4
26.	Crops	1	2	3	4
27.	Farm Management	1	2	3	4
28.	Organic or Sustainable Agriculture	1	2	3	4
29.	Dairy	1	2	3	4
30.	Personnel Management	1	2	3	4
31.	Marketing	1	2	3	4
32.	Value-added Agriculture	1	2	3	4
33.	Farm Business Financial Analysis	1	2	3	4
34.	Nutrition	1	2	3	4
35.	Precision Farming	1	2	3	4
36.	Fruit/Vegetable Production	1	2	3	4
37.	Calf and Replacement Raising	1	2	3	4
38.	Integrated Pest Management	1	2	3	4

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Producer Training Survey
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39.	Risk Tolerance	1	2	3	4
40.	Farm transfer from one generation to the next.	1	2	3	4
41.	Farm based sales of agricultural products (e.g., feed, seed, etc.)	1	2	3	4

42. Others: _____

Appendix B

Survey Instrument Data

Question #	Yes	No				# Responses
1	55	38				93
2	9	60				69
3	79	14				93
4	69	23				92
5	65	27				92
6	70	24				94
	1 thro.3	4 thro. 10	> 10			
7	64	28	2			94
	1 thro. 5	6 thro. 10	> 10			
8	8	7	78			93
	< 30	31 thro. 40	41 thro. 50	> 50		
9	9	30	31	21		91
	Survive	Expansion	Family	No change	Other	
10	13	29	25	17	11	95

Question #	11	12	13	14	15	16	17	18
	2.354839	3.032258	3.150538	2.978495	2.935484	1.967742	3.23913	2.408602
	1.089926	0.937754	0.736417	0.77989	1.223026	1.127248	0.918307	1.045035

19	20	21	22	23
2.268817	1.698925	1.344086	1.956989	0.860215
1.074808	1.397085	1.156218	1.382452	0.939373

24	25	26	27	28	29	30	31	32	33
3.258065	3.655914	3.591398	3.445652	2.634409	3.483871	2.956522	3.365591	3.021505	3.32967
0.907735	0.650996	0.695272	0.998506	1.071214	0.973708	1.07839	0.81807	0.896594	0.857061

34	35	36	37	38	39	40	41	
3.376344	2.55914	1.655914	3.428571	2.956989	3.010989	2.935484	2.782609	2.5
0.832936	0.937879	0.814203	0.871051	0.943098	0.781658	1.008728	1.003577	1.290994

Appendix C

Description of Farming Goal

1. Help future generation succeed in farming.
2. To become debt free/positive successful farmer.
3. Be able to work with family and run a successful operation that can be passed on to future generations.
4. Maintain good living, while improving current operation.
5. Produce the highest quality product while maintaining animal health.
6. Promote sustainable farming practices.
7. Get better and more efficient.
8. Maximize profitability in a modest size family operation.
9. Sustainable ag, sustainable forestry, environmentally friendly, organic crops, nutrient management.
10. Find sustainable niche markets.
11. Retire with some money.
12. Make money and more fun doing it.
13. Work smarter, not harder, enjoy what I do.

Appendix D

Suggestions of Other Training

1. Monitor livestock diseases (TB, Johnes, mad cow, and hoof and mouth)
2. How to transfer a male based farming operation to a female-based and to a female/male pair.
3. Fencing livestock, handling equipment, and rotational grazing.
4. Grazing issues for livestock.
5. I have some interest in general electricity for buildings and equipment.