

**A CASE STUDY IN ONLINE INSTRUCTION FOR A NON-LABORATORY-BASED
COURSE IN HERBACEOUS PLANTS**

By

Billy Ray Wu-Rorrer

Thesis submitted to the Faculty of

Virginia Polytechnic Institute and State University

In partial fulfillment of the requirements for the degree of

Master's of Science in Education

In

Career and Technical Education

(Concentration in Agricultural and Extension Education)

Dr. John Hillison, Chair

Dr. Daisy Stewart

Dr. Jerry Williams

November 18, 2004

Blacksburg, Virginia

Keywords: Distance Education, Distance Learning, Instructional Design,
Online Teaching, Online Learning, Online Course Development, Herbaceous Plants

(ABSTRACT)
**A CASE STUDY IN ONLINE INSTRUCTION FOR A NON-LABORATORY-BASED
COURSE IN HERBACEOUS PLANTS**

By
Billy Ray Wu-Rorrer

This case study examined asynchronous online instruction to suggest practices of delivering a traditional lab-based course via the Internet and effective ways of teaching in such an environment. Numerous studies were outlined to compare traditional and distance education student outcomes, commonly referred to as the media comparison approach. This approach, as it pertains to the instructional design process, was outlined in-depth to provide an outline for future online courses in Herbaceous Plants.

The instructor's enthusiasm and interests about delivering an online course led to the development and implementation of the first Herbaceous Plants course at The George Washington University. The course was offered in an attempt to address the growing needs and requests of the Landscape Design students for a course on herbaceous plants.

Institutions can use this study to gain insight into the technologies used in distance education and how traditional lab-based courses can be taught through asynchronous, online environments. A well developed distance education program can be a time saving, cost-effective solution in higher education. In order to implement similar courses, institutions should complete individualized instructional designs prior to the development of the course.

While technologies such as the Internet, email, and videostreaming have effectively facilitated dramatic increases in our abilities to disseminate information, distance education is not the solution to every educational challenge. In time, online instruction will take its place in contemporary education while continuing to expand educational opportunities to new and distant audiences whose quest for knowledge would otherwise be hampered by time or distance.

Acknowledgements

I would like to take an opportunity to thank several individuals for their assistance in the completion of my thesis.

First, my wife, Emily, and my son, Zachary. The two of you have spent countless hours without my presence while I have undertaken this project. Without your support, understanding, and love, I would have never been able to complete it. I look forward to the many years ahead and all the time we will now have to spend together.

Secondly, I would like to thank my parents for all of your support of my educational endeavors.

To you, Uncle Wayne, although you are no longer here with us, you are still there guiding me to do my very best.

Next, I would like to thank my administrator at the George Washington University, Adele Ashkar. You have provided me the assistance and flexibility to embark on an educational experience unlike any other. Your patience and confidence in me has been invaluable.

I would like to thank Dr. John Hillison, my committee chair and advisor, for your guidance through my post secondary education. Even as a freshman when I struggled with the adjustment into college, you kept your faith in me.

Finally, to my committee members, Dr. Daisy Stewart and Dr. Jerry Williams, for your commitment in making this project a valuable addition to the field of education.

Table of Contents

Title Page	i
Abstract	ii
Acknowledgements	iii
Table of Contents	iv
List of Tables	vii
List of Figures.....	vii

CHAPTER 1 Introduction

Introduction	1
Purpose of the Study	3
Need for Study	3
Need for Future Research	5
Rational for Study	5
Questions to Be Answered	6
Limitations of Study	6
Definition of Terms	7
Summary of Chapter	7
Preview of Future Chapters	8

CHAPTER 2 Review of Literature

Distance Education	9
Previous Studies on Distance Education	9
Technologies	11
Course Offerings in Distance Education	12
Similar Courses in Herbaceous Plants	14
Issues and Concerns	14
Instructional Design Models	16
Instructional Design Models Defined	17
Instructional Design Model: Dick and Carey	19

Instructional Design Models for Distance Education	19
Strengths and Limitations	20
Summary	21

Chapter 3 Methodology

Overview	22
Target Population	23
Instructional Procedures	23
Orientation	24
Instructional Media	24
Communications	24
Questionnaires	24
Design	25
Instructional Analysis	25
One-on-One Evaluation Procedures	30
Field Test Procedures	30

Chapter 4 Findings

Background	27
Pilot Study Information	27
Structure	27
Suggested Practices: Implementation	27
Production Time	28
Equipment and Facility	28
Structural sequence	29
Course Content	29
Syllabus	29
Schedule	30
Logging Into Blackboard	30
Sources of Information	31
Plant Lists	31

Research Papers	31
Modules	31
Revise Instruction	32
Motivation	32
Relevance	32
Confidence	33
Satisfaction	33
Instructional Activities	33
Sample Lesson Outline	33
Memory Aid	34
Transfer	34
Assessment Instruments	34
Entry Behavior Test	35
Pretests	35
Posttests	36
Suggested Practices: Instructional Procedures	36
Orientation Sessions	36
Instructional Media	36
Communications	37
Discussion Boards.....	37
E-mail Communication	37
Documents	38
Data Sources/Collection/Recording Procedures	38
Field Notes/Investigator’s Journal	39
Summary	39
Demographics and Student Usage	40
Summary of Findings	42
 Chapter 5 Discussion	
Summary of Study	43
Research Question # 1:Implementation	44

Research Question # 1:Instructional Procedures	45
Research Question # 2	46
Relationship of the Findings to Previous Research	47
Issues and Concerns	48
Implications for Future Practice, Research, and Policy	50
Conclusions	51
References	52

Appendices

Appendix A Consent Forms (IRB)	57
Appendix B Syllabus	60
Appendix C Schedule	62
Appendix D Logging Into Blackboard	63
Appendix E Plant Identification Notebook	64
Appendix F Plant Lists	65
Appendix G Outline of Research Papers	67
Appendix H Surveys	69
Appendix I Performance Objectives	81
Appendix J Vita	92

List of Tables / Figures

Table 1 Types of Distance Learning Technologies	11
Table 2 Time and Space Dimensions.....	12
Table 3 Demographic Information for Students at GWU	40
Table 4 Summary of Student Usage	41
Figure 1 Distance Education Courses Offered	13
Figure 2 Distance Education Course Offerings by Field of Study	13
Figure 3 Dick and Carey Model (1999).....	18
Figure 4 Production Times	28
Figure 5 Overall Rating of Instructional Areas.....	30