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The University of Southern Mississippi

A COMPARISON OF COURSE COMPLETION, SATISFACTION, ACHIEVEMENT,  
AND PERFORMANCE AMONG NON-PROFIT PROFESSIONALS WHO  
COMPLETE ANDRAGOGICAL OR PEDAGOGICAL ONLINE LEARNING  
MODULES ON GRANT WRITING

By

Joe Bernard Bradley, Jr.

Abstract of a Dissertation  
Submitted to the Graduate School  
of The University of Southern Mississippi  
in Partial Fulfillment of the Requirements  
For the Degree of Doctor of Philosophy

May 2010

## ABSTRACT

# A COMPARISON OF COURSE COMPLETION, SATISFACTION, ACHIEVEMENT, AND PERFORMANCE AMONG NON-PROFIT PROFESSIONALS WHO COMPLETE ANDRAGOGICAL OR PEDAGOGICAL ONLINE LEARNING MODULES ON GRANT WRITING

By Joe Bernard Bradley, Jr.

May 2010

The purpose of this study was to compare the outcomes among staff members of nonprofit social service agencies who participated in or completed an andragogically-facilitated or a pedagogically-conducted online learning module on foundation grant writing. The efficacy of andragogical methods is unknown and often debated due to scarce empirical research on the topic. Though most prior empirical studies revealed no significant differences in outcomes between the two methods, this is the first study of its kind to address each of the assumptions of andragogy in an online non-formal learning environment. Effectiveness was measured based on participants' self-reported reaction to learning (course evaluation instrument), program completion rates, achievement growth (level of evaluative skill) and grant writing performance scores as a function of learning group. Two open-ended response items were also included within the course evaluation instrument to add narrative depth to the empirical results via triangulation.

Fifty-two volunteer staff members of nonprofit agencies in a Southeastern state who expressed interest in participating were randomly assigned to one of two online learning modules, resulting in at least partial data on 33 participants including 16 subjects who received an andragogical learning module and 17 subjects who received a

pedagogical learning module. Among 33 participants, 28 were also completers including 14 subjects who received an andragogical learning module and 14 subjects who received a pedagogical learning module.

Among both participants and completers, one-way ANOVAs revealed there were no statistically significant differences as a function of learning group between each of three dependant variables: reaction to learning (course evaluation ratings), achievement growth (level of evaluative skill), and grant writing performance scores. Similarly, a chi square test of independence revealed that program completion rates did not differ significantly as a function of learning group. As such, the primary implication is that andragogical learning methods as facilitated in the current study were just as effective as pedagogical methods in online non-formal grant writing modules with respect to the aforementioned variables. Among completers, a significant positive correlation was also found between grant writing performance scores and participants' experience writing funded grants over the last five years.

Qualitative results among participants indicated that 15 of 16 subjects (93.75%) in the andragogical module and 11 of 15 subjects (73.33%) in the pedagogical module who responded to the first open-ended question, stated affirmatively their enjoyment of learning from the experiences of others while participating in non-formal non-credit learning opportunities. In addition, 13 of 14 subjects (92.86%) in the andragogical module and 14 of 16 (87.50%) in the pedagogical module who responded to the second open-ended question stated affirmatively that by participating in the online course they were more likely to pursue future educational opportunities of a similar nature. These qualitative differences, in conjunction with the clearly more favorable aggregated mean

course evaluation ratings among participants in the andragogical module as compared to the pedagogical module, supported the finding of higher overall learner satisfaction levels among participants in the andragogical module.



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To my doctoral committee, the unique experiences and expertise you each brought to this project will forever be appreciated. First, appreciation is extended to Dr. Rachal, my doctoral committee chair, whose prolific research and publication record in the areas of adult learning and especially andragogy helped prompt my own interest in the topic as related to modern distance education. Gratitude is also extended to Dr. Willie Pierce, whose facilitative educational style and marketing ideas were utilized in recruiting participants for the current study. Dr. Lin Harper, whose experiences as an adjunct faculty member and distance education administrator, lent support during the feasibility stage of my research as well as its online implementation. And finally, appreciation is extended to Dr. Kyna Shelley, who offered insights on melding quantitative research with

my own interest in qualitative methodologies to present the findings through both the voices of my study participants as well as quantitatively.

Lastly, appreciation is extended to the study participants themselves, many of whom communicated the usefulness of the project toward improving their own grant seeking efforts. As adult learners of all ages and experience levels, interactions with and between the participants allowed me to implement various theories and methods of working with adults in an informal manner thereby improving my own practice and developing a research and practice agenda for the future. After all, adult learners should be at the heart of all that we do.

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## CHAPTER I

### INTRODUCTION

#### Background

The term “andragogy” was first developed by Alexander Kapp, a German teacher in 1833 in an attempt to “describe the educational theory of Plato” (Davenport & Davenport, 1985a, p. 152). Davenport and Davenport (1985b) debated whether it was Malcolm Knowles or Eduard Lindeman who brought the term to the United States. Lindeman first introduced it in 1927, but Knowles brought the term to prominence with his 1967 address as the recipient of the Delbert Clark Award (Davenport & Davenport, 1985b). Knowles, as cited in Levitt, changed his conceptualization of andragogy and pedagogy, first presenting the two as dichotomous in his 1970 work, *The Modern Practice of Adult Education: Andragogy vs. Pedagogy*, but later clarifying himself in the journal critique *Andragogy Revisited – Part II*, where he wrote,

I have realized for some time now that I made a serious mistake in titling *The Modern Practice of Adult Education: Andragogy vs. Pedagogy*, and presenting their two sets of assumptions about learners as a dichotomy. The subtitle should have been *From Pedagogy to Andragogy* and the assumptions should have been presented on a continuum (Levitt, 1979, p. 52).

Today, andragogy is commonly viewed as a set of assumptions about working with adults. The term was popularized in the United States by Malcolm Knowles during the late 1960s and early 1970s and has since been referred to as a unifying principle in the broad field of adult education (Merriam, 1991; Merriam & Brockett, 1997). Knowles’ changes in belief regarding the applicability of andragogy to instructional

settings for adults is clearly evident when considering the titles of two of his major works: *The Modern Practice of Adult Education: Andragogy vs. Pedagogy* (1970), and *The Modern Practice of Adult Education: From Pedagogy to Andragogy* (1980).

Although frequently described as a theory of adult learning, its efficacy has been questioned because of the dearth of conclusive quantitative evidence supporting its use. Rachal (1983) described “andragogy” as “a term and concept still struggling for acceptance within the field, and virtually unknown outside of it” (p. 14). The debate surrounding whether andragogical instructional methods or pedagogical ones are more effective with adults is ongoing. The andragogy debate is described by Podeschi (1987) as follows:

The usual analysis of the debate among theoreticians in North America divides the debate *between* those who subscribe to a unified outlook on all education and are against an andragogy/pedagogy distinction *and* those who are pro-andragogy and view adult education as uniquely different from children’s education. (p. 15)

#### Statement of the Problem

The current study was designed to compare the efficacy of andragogical and pedagogical educational approaches in non-formal non-credit foundation grant writing modules conducted via an online delivery system.

#### Purpose of the Study

The efficacy of andragogical instructional methods is unknown and often debated due to scarce empirical research on the topic. More research regarding the efficacy of andragogy is necessary in order to determine the true effects of andragogical methods on learner outcomes. The current study was planned to compare the effectiveness of



andragogical or student-centered instruction, and pedagogical or teacher-centered instruction, between staff members of nonprofit social service agencies who participate in or complete an online learning module on foundation grant writing using the two methods.

Effectiveness was measured on the basis of adult learners' reactions to instructional modules (course evaluation ratings), program completion rates, achievement growth (level of evaluative skill), and grant-writing performance scores. Although the current study was originally conceived as purely quantitative in design, two open-ended response items were included within the course evaluation instrument to add narrative depth to the quantitative results. This was particularly useful since participant numbers were somewhat lower than anticipated.

#### Research Hypotheses

To help determine the effectiveness of the two instructional methods, four hypotheses were formed:

$H_1$  : There will be a statistically significant difference in self-reported reaction to learning (course evaluation ratings) between staff members of nonprofit social service agencies who participate in or complete an andragogically-facilitated or a pedagogically-conducted online learning module on foundation grant writing.

$H_2$  : There will be a statistically significant difference in program completion rates between staff members of nonprofit social service agencies who participate in or complete an andragogically-facilitated or pedagogically-conducted online learning module on foundation grant writing.

*H<sub>3</sub>* : There will be a statistically significant difference in the achievement growth (level of evaluative skill) between staff members of social service agencies who participate in or complete an andragogically-facilitated or pedagogically-conducted online learning module on foundation grant writing.

*H<sub>4</sub>* : There will be a statistically significant difference in performance between grant proposal scores received by staff members of nonprofit social service agencies who participate in or complete an andragogically-facilitated or pedagogically-conducted online learning module on foundation grant writing.

### Definitions

*Achievement.* The achievement measure assesses participants' ability to evaluate a pre-selected grant proposal both prior to and upon completion of an andragogical or pedagogical learning module. Two different evaluations with respect to achievement were conducted:

1. *Level of achievement:* Participants' achievement was determined both pre- and post-module completion.
2. *Achievement Growth:* The change in participants' achievement was determined between the pre and post levels.

*Adult.* An individual over 23 years of age (Rachal, 2002).

*Andragogy.* "The art and science of helping adults learn" (Knowles, 1980, p. 43).

According to Knowles (1980), the assumptions of andragogy suggest that, as individuals mature,

- 1) Their self-concept moves from one of being a dependent personality toward

being a self-directed human being; 2) they accumulate a growing reservoir of experience that becomes an increasingly rich resource for learning; 3) their readiness to learn becomes oriented increasingly to the developmental tasks of their social roles; and 4) their time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly, their orientation toward learning shifts from one of subject-centeredness to one of performance-centeredness. (pp. 44-45)

*Asynchronous Communication.* “Interaction between people that is separated by minutes, hours or even days. E-mail or posting to a LISTSERVE are examples. The opposite is real-time interaction such as phone, online chat or video conferencing” (Simonson, 2008, p. 37).

*Completer.* A participant who submitted a pre-assessment, post-assessment and performance assessment. Submission of a course evaluation instrument, however, is not required to be deemed a completer.

*Correspondence Course.*

This is the simplest and oldest form of distance education. Assignments are mailed to the learner. The learner completes the assignment and returns it to the instructor for grading. Feedback is provided via mail and the next assignment is mailed to the learner. The cycle repeats until the course is completed.

(Simonson, 2008, p. 59)

*Distance Education.* “The acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance” (United States Distance Learning Association, 2009).

*Distance Learning/Online Learning.*

A term for the physical separation of teachers and learners that has become popular in recent years, particularly in the United States. While used interchangeably with distance education, distance learning puts the emphasis on the learner and is especially appropriate when students take on greater responsibility for their learning as is frequently the case when doing so from a distance. (Simonson, 2008, pp. 67-68)

*Participant.* A participant is an adult volunteer who expressed interest in participating in an online learning module on grant writing, was assigned a user name and password, then completed at least the Learner Consent Form, Demographic Survey, and the pre-test and/or one or more subsequent learning activities. Those who volunteered but withdrew, however, were not counted as participants.

*Pedagogy.* “The art and science of teaching children” (Knowles, 1980, p. 40).

According to Knowles (1980), the assumptions of pedagogy suggest that

(1) the role of the learner is, by definition, a dependent one; (2) the experience learners bring to the learning situation is of little worth. It may be used as a starting point, but the experience from which learners will gain the most is that of the teacher, the textbook writer, the audiovisual aid producer, and other experts; (3) people are ready to learn whatever society (especially the school) says they ought to learn, provided the pressures on them (like fear of failure) are great enough. Therefore, learning should be organized into a fairly standardized curriculum, with a uniform step-by-step progression for all learners; and (4) learners see education as a process of acquiring subject-matter content, most of

which they understand will be useful only at a later time in life. People are subject-centered in their orientation to learning. (pp. 43-44)

*Performance.* The performance measure evaluates participants' abilities to write grant proposals. Learners prepare and submit a mock grant proposal which is scored by two experts on a 100 point scale for consistency with the program's guidelines. This evaluation is done upon completion of participants' learning module experience.

*Volunteer.* According to Rachal (2002), a volunteer learner might be described as a learner who wishes to participate in a learning situation "for her own personal fulfillment or some other internal motivator" (p. 219). The current researcher followed Rachal's definition. In the spirit of Lindeman, this would not include professional advancement, but Knowles (1984) would accept professional advancement if it is not mandated or in any way coercive.

#### Assumptions

1. It is assumed that Likert scale ratings from the course evaluation instrument (reaction to learning) correctly represent the students' attitudes toward both the course modules and their instructor.
2. It is assumed that scores on pretests and posttests are valid representations of learners' achievement growth (level of evaluative skill) as related to the subject matter.
3. It is assumed that foundation grant writing scores are valid measures of learners' performance as related to the subject matter.

### Limitations

1. The researcher will serve as the instructor for each module which could result in instructor bias.
2. The participants will self-report their reaction to learning (course evaluation ratings) upon module completion which could result in participant bias if certain questions are misunderstood and/or responses are insincere.

### Delimitations

1. This study is delimited to volunteer adult learners who are members of a statewide professional association for nonprofit organizations located in the Southeastern United States.
2. This study is delimited to activities that are accessible to volunteer adult learners through an online delivery method.
3. This study is delimited to assessing the efficacy of andragogically-facilitated instruction as compared to pedagogically-conducted instruction.
4. This study is delimited to an exclusively online delivery system.
5. All variables not described within this document are outside the reach of the current study.

### Justification

In negating the need for continuing debate surrounding whether andragogy is fully accepted as a theory versus simply a method of instruction, Davenport and Davenport (1985a) emphasized that “the method must be based on the best available educational research” (p. 158). Plecas and Sork (1986) recognized the rapidly increasing number of what they termed “explanation theory/sketches” in the field of adult education

inclusive of but not limited to andragogy, that lack adequate empirical testing (p. 48). Merriam (1991) wrote that “Andragogy is an area that is weak in empirical confirmation” (p. 75). While also illustrating the need for further research, Pratt (1993) concluded, “We cannot say, with any confidence, that andragogy has been tested and found to be, as so many have hoped, either the basis for a theory of adult learning or a unifying concept for adult education” (p. 21).

Throughout the 1980s and 1990s, however, at least 18 empirical studies were conducted on the efficacy of andragogical and pedagogical methods of instruction.

According to Rachal (2002),

Unfortunately, the studies of the 1980s and 1990s relative to andragogy’s effectiveness in both achievement and satisfaction provide mixed results and often ‘no significant differences’ emerging from variegated methodologies, and thus reveal an unstable theoretical foundation upon which to prescribe practice. (p. 224)

Perhaps the primary issue that has perpetually challenged researchers is the use of paper-pencil tests when measuring achievement. According to Rachal (2002), “andragogy eschews paper-pencil testing, yet that is the most common and presumably easiest form of determining whether the learner has mastered content” (p. 217). Even though a large number of studies have been completed on andragogy, Rachal identified just 18 that utilized experimental or quasi-experimental methods in testing its effectiveness. Of these, only four including Clark (1991), Cross (1988) and Stevens (1986), measured achievement via performance measures as opposed to paper-pencil

tests. Significantly, none of these studies were conducted via a distance education delivery system.

Clark (1991) determined the impact of contracts as compared to teacher-centered instruction on 86 university nursing students. She concluded that students from the traditional group received higher average scores for clinical performance than did those who participated in the contractual group. In contrast, Stevens (1986) found no differences in skills acquired between 116 volunteer participants who were randomly assigned to either andragogical or pedagogical instructional cohorts on proper brushing and flossing techniques. Finally, Cross (1988) found no significant differences in the rehabilitation outcomes between four groups of randomly-assigned subjects receiving treatment for non-surgical lumbar syndrome.

Similarly, attendance or persistence/retention has received minimal attention within empirical studies. Of those studies summarized by Rachal (2002), only three included related outcome measures, and two of those resulted in at least some statistically significant differences favoring andragogy. For example, Beder and Carrea (1988) concluded that teachers who received instruction on andragogical principles “had a positive and significant effect ( $p = .10$ ) on attendance” (p. 75), when compared to a control group who were not trained. Such “holding power,” Beder and Carrea posited, is essential to adult education settings that cater to voluntary participants. Since adult education in its purest sense targets volunteer learners, the addition of a related measure to the current study is warranted.

Even though the sheer number of empirical studies that sought to measure the efficacy of andragogy increased dramatically from the 1980s to the mid 1990s, but has



since slowed, Plecus and Sork (1986) recognized that “two fundamental functions which normally characterize emerging disciplines are not apparent in the adult education literature – cumulative knowledge and theory building” (p. 48). Based on his own review of selected empirical literature surrounding the efficacy of andragogy, Rachal (2002) put forth a set of seven criteria to serve as an operational definition for future researchers. These criteria were indeed derived from cumulative knowledge in order to address the plethora of design problems from prior studies, including but not limited to, “mixing of adults and nonadults; absence of learner control; paper-pencil tests of achievement; and questionable volunteerism of learners” (p. 213).

Although Wilson and Hayes (2002) expressed opposition to the “implicit epistemological orientation of Rachal’s research agenda” (p. 174), they do clearly support his call for future andragogy researchers to utilize more consistent hypotheses and operational definitions. These former editors of *Adult Education Quarterly* rationalized their support of Rachal’s agenda by concluding “the field sorely lacks depth in even its most dominant intellectual claims” (Wilson and Hayes, 2002, p. 174). Without more consistent criteria and continuing research, the science aspect of the term that Knowles defined as “the art and science of helping adults learn” (1970, p. 38), and andragogy’s status as either a key method of instruction or theory on which the field of adult education in the United States was historically based, may forever remain unsubstantiated in the empirical literature.

Although both hypotheses and research methodologies for the current study as described in chapters one and three of this proposal follow Rachal’s (2002) purist definition of andragogy where possible, the researcher also recognizes, as does Rachal,

the need to base certain strategies on situational contexts. In such cases, an explanation is provided regarding how the strategy in question meets with the intent of andragogy as defined by Rachal (2002), but is by necessity an exception to his “gold standard” for andragogy research. The current research, therefore, will add much needed empirical evidence to the andragogy and pedagogy debate by addressing all of the design problems from prior studies as described by Rachal and the current researcher that are more fully addressed in chapter two. The study is also unique in that a true experimental design via an online delivery system has been proposed that represents what Shavelson (1996) labels “ideal models for the design of behavioral research in that they rule out virtually all threats to internal validity through the use of control groups and random assignment” (p. 25). As a result, the researcher for the proposed study may legitimately “make casual inferences about the effect of the independent variable on the dependent variable” with respect to the hypotheses being studied (Shavelson, 1996, p. 25).

## CHAPTER II

### REVIEW OF LITERATURE

#### Introduction

Past research has focused on andragogical methods, particularly with regard to learner achievement, satisfaction, and to a lesser degree attendance and other outcomes. A summary of these studies is provided in this chapter, each presented in one of two categories: studies of andragogy in college settings and studies of andragogy in non-college settings. First, the theoretical foundations of this dissertation are discussed. The proffered criteria of Rachal (2002), with regard to future andragogical studies, are then presented, followed by the studies.

#### Theoretical Foundations

The theoretical foundation of the proposed dissertation research is built upon andragogy. Lindeman hypothesized four initial assumptions of the adult learner: that education is life—not a mere preparation for an unknown kind of future living, that adult education evolves around nonvocational ideals, that the approach to adult education will be via the route of situations, not subjects, and that the resource of highest value in adult education is the learner’s experience (Stewart, 1987, p. 103).

These assumptions helped set the stage for Knowles when conceptualizing the theoretical foundations of andragogy.

In one of his seminal works, *The Modern Practice of Adult Education: Andragogy Versus Pedagogy*, Knowles (1970) suggested that most theories about teaching and learning resulted “from experience with teaching children under conditions of

compulsory attendance” (p. 37). In such instances, education was viewed as simply transmitting knowledge. Because of the increasingly rapid pace of cultural change, however, he and most practitioners recognized that adults should not be taught using teacher-centered pedagogical methods that have traditionally been used for children. As a result, the term andragogy was defined by Knowles (1970) as “the art and science of helping adults learn” (p. 38). Knowles later realized that the teaching and learning transaction for adults and children alike is frequently on a continuum rather than categorical or dichotomous in nature (1980). In contrast, Elias (1979) believed there should be no difference in teaching children and adults, though Knowles and Elias view the learning transaction for both to be on a continuum. Unlike Knowles, Elias (1979) discounted the need for empirical research on andragogy, instead describing the term simply as a “helpful slogan in the adult education movement. But it is not to be taken seriously as an educational theory” (p. 255). Even so, the word “science” remained as part of Knowles’ definition of andragogy until his death on November 27, 1997, thereby suggesting his continuing belief in the efficacy of its assumptions.

Knowles has encouraged leadership and unity within adult education by promoting debate regarding the utility of adult education, structuring his views of andragogy on at least four assumptions of the learner, and organizing these assumptions into seven ideas for practice. According to Knowles (1980), the four critical assumptions about the adult learner suggest that as people grow up,

their self-concept moves from one of being a dependent personality toward being a self-directed human being; they accumulate a growing reservoir of experience that becomes an increasingly rich resource for learning; their readiness to learn

becomes oriented increasingly to the developmental tasks of their social roles; and their time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly, their orientation toward learning shifts from one of subject-centeredness to one of performance-centeredness.

(pp. 44-45)

But future research may have been obscured or even clouded by Knowles and Associates' own postulations that were put forward in his edited book, *Andragogy in Action* (1984), which essentially provided a brief overview of adult education as the art and science of helping adults learn, but focused primarily on illuminating numerous applications of andragogy from the perspectives of practitioners in divergent settings ranging from business and industry, government, colleges and universities, the professions, elementary and secondary education, and remedial education. Knowles ended this seminal work by presenting brief conclusions regarding the efficacy of andragogy in various settings. Based on former practice, he posited that the andragogical model is a "system of elements" that may be implemented in their entirety or through individual or eclectic components thereof (Knowles & Associates, 1984, p. 418). Perhaps further confusing the matter, Knowles and Associates (1984) recommended,

The appropriate starting point and strategies for applying the andragogical model depend on the situation. In some situations—for instance, in new institutions or programs starting from scratch—it may be appropriate to apply the model totally and at once. In most instances, however, it would probably be more appropriate to experiment by applying the model to one course or one department in an institution or a workshop or a special

project. (p. 418)

Of continuing difficulty for some andragogy researchers, therefore, is the fact that Knowles never fully or clearly operationalized his assumptions of andragogy for future researchers, which may have at least partially impacted the lack of comparability of empirical research conducted on the efficacy of andragogy versus pedagogy on achievement and performance as summarized by Rachal in his article titled “Andragogy’s Detectives: A Critique of the Present and a Proposal for the Future” (2002).

#### Rachal’s Proffered Criteria for Andragogy Researchers

In light of prior research on the efficacy of andragogy, Rachal (2002) suggested his seven proffered criteria. Each of these criteria should be considered by future andragogy researchers to help insure that their studies utilize a true andragogical approach. Rachal’s criteria are labeled voluntary participation, adult status, collaboratively-determined objectives, performance-based assessment of achievement, measuring satisfaction, appropriate adult learning environment, and technical issues.

#### *Voluntary Participation*

To better comply with the assumptions of andragogy, Rachal (2002) expressed that future studies should target only participants who are willing, and even desire, to participate. Knowles, as cited in Levitt, discovered that the reason pedagogical models were less successful when applied to adults was due to the voluntary nature of most adult education (Levitt, 1979). Rachal (2002) did not provide a strict definition of “voluntary,” but mentioned that participation should not be coercive and, “Under no circumstances should externally imposed negative consequences follow for nonparticipation” (p. 219). Rachal continued, “But to restrict ‘voluntary’ to the idea that the only legitimate benefit

of andragogy would be learning for its own sake or self-actualization seems an excessive limitation” (p. 220). The study of students in andragogical settings for future studies, therefore, would benefit from the examination of

situations such as noncredit continuing education programs where the great majority of the learners want to be there, are motivated to learn the material because it is intrinsically interesting or useful to them, and are inclined to see the learning activity as inherently valuable and not solely valuable as a means to some end. (p. 220)

### *Adult Status*

Rachal (2002) asserted that educational environments should be comprised of only adult learners, as the inclusion of non-adult learners could jeopardize the integrity of the results of such a study and render them not as applicable to the andragogy debate. Rachal explicitly wrote, “Future andragogy studies should avoid college settings if the various groups being compared are partly comprised of traditional college students” (p. 220). When college settings comprised of traditional and adult students must be used, Rachal advised the use of four different groups (pedagogical-traditional; pedagogical-adult; andragogical-traditional; and andragogical-adult). With regard to the definition of “adult” for the purpose of such studies, Rachal wrote,

For future andragogy research, ‘adult’ should refer to learners who have assumed the social and culturally-defined roles characteristic of adulthood and who perceive themselves to be adults, or, if those qualities are not ascertainable, learners who have achieved an age, such as 25, which would be regarded as adult irrelevant of social circumstances. (2002, p. 220)

### *Collaboratively-determined Objectives*

Rachal (1983) described andragogy as self-directed whereas pedagogy is often seen as teacher-directed. Rachal (2002) declared that future research should use educational settings that epitomize this notion of self-direction. According to Rachal, the learner should play “a significant or even primary role in the determination of the learning objectives” (p. 221). Suggested as potential tools to achieve this end are contracts, although Rachal advised that the implementation of contracts may not work in every setting. He wrote, “A contract with predetermined objectives prescribed by the instructor does not achieve this purpose unless the learner knows those objectives beforehand and they are what attracted the learner in the first place” (p. 221). Other situations may call for collaboration between the students and the instructors regarding course objectives, or even full determination of objectives by learners in educational settings where “satisfaction” rather than “competence” is paramount (Rachal, 2002). Rachal explained the learner’s role: “Andragogy researchers should seek settings in which the learner has a substantive role in some significant aspect of planning the activity or in which there is a clear, high, and pre-existing congruence between the instructor’s and the learner’s objectives” (p. 221).

### *Performance-based Assessment of Achievement*

Traditional achievement assessment techniques, such as paper-based tests, are not proffered methods of assessment for andragogical research (Rachal, 2002). Because of this, Rachal recommended that future studies evaluate achievement using performance-based techniques agreed upon by both the learner and the facilitator. With respect to the learner’s role, Rachal wrote,



The desirable assessment measure is demonstration of the ability to perform the learned material through a direct means, such as actually taking and printing a photograph, rather than an indirect means, such as taking a paper-pencil test on how to take and print a photograph. (p. 221)

Rachal suggested that performance tests that assess the learner's ability to either complete a task (pass) or not complete a task (fail) should be considered. Both Rachal (2002) and Knowles (1980) discussed tests created by learners themselves as appropriate for andragogy research. Self-evaluations are also noted as worthy for study (Rachal, 2002).

Rachal concluded that

Performance assessments, especially where what is performed is precisely the ability the learner sought in undertaking the learning experience, or at least performance tests with learner input (such as in the use of a learning contract), are more 'real world' than paper-pencil achievement tests and would be closer to the gold standard. (2002, p. 222)

### *Measuring Satisfaction*

Participant (or learner) satisfaction should be measured in all learning environments studied by andragogy researchers (Rachal, 2002). The focus of some andragogical educational settings, however, is to achieve a level of satisfaction for its learners, regardless of achievement in acquiring learned knowledge or a skill (Rachal).

Of these types of educational settings, Rachal wrote,

In such settings, the measurement of satisfaction is critical to the andragogy researcher. But whereas achievement need not be measured in those settings where achievement is not the primary objective, satisfaction with the learning

experience should be measured in all settings. (2002, p. 222)

### *Appropriate Adult Learning Environment*

Rachal (2002) wrote, “Future andragogy studies should make every attempt to insure that both the physical and the psychological environments are as congruent as possible with Knowlesian guidelines for adult learning settings” (pp. 222-223). These types of environments are difficult to determine, but Rachal advised against conducting studies in environments which do not exhibit such a familiarity and level of comfort with the learners. Rachal described characteristics of the facilitator usually present in appropriate adult learning environments. These characteristics include “friendliness, confidence, content knowledge, charisma, empathy, humor, expressiveness, enthusiasm, body language, fairness, respect, kindness, and understanding” (2002, p. 223).

### *Technical Issues*

Rachal (2002) acknowledged that “ideally, random assignment of participants should occur” (p. 223), but this practice is usually an issue of practicality and thus he considers existing groups of adult learners to be acceptable for study. He expressed a need for a single facilitator of both andragogical and pedagogical instruction which “helps assure that personality variables do not confound the outcome” (p. 223), but warned that single facilitators may also display instances of bias. When two facilitators are used, they should be as similar as possible with regard to “experience, (including experience with their assigned or selected teaching methodology), general ability, content knowledge, and teaching evaluations” (p. 223). Rachal (2002) explained that other factors to consider are “adequate numbers of participants, equal and appropriate treatment duration, informed consent, comparability of groups, and so forth” (p. 224).

### Findings of Empirical Studies on Andragogy in College Settings

Several empirical studies have been conducted in the past regarding andragogical instructional methods and outcomes like students' academic performance, attendance, and satisfaction. Presented here are the results from such studies which examined college settings with regard to these outcomes and Rachal's (2002) seven criteria. Many of these studies were conducted prior to the formulation of Rachal's guidelines and, in fact, were used by Rachal to help determine which criteria should be specifically proffered. Several of these studies were conducted in traditional settings and include traditional (rather than adult) learners. Some, in fact, target only traditional students and fail to limit the application of andragogical methods to adults only as defined by Rachal.

Anaemena (1985) conducted research to determine the difference in student achievement, if any, between students who were taught andragogically and pedagogically at three Nigerian colleges. Anaemena's findings suggested that no such differences exist, and in his case, andragogically taught students fared just as well as traditionally taught students taught via lecture and discussion. Anaemena used *t*-tests and ANOVA analyses to determine that no statistically significant differences were found. His andragogical instructional methods consisted of learners essentially teaching themselves (with some guidance) with the aid of instruction sheets and booklets. Although the andragogical instructional methods utilized in his study were just as effective as ordinary instruction, Anaemena's research plan does not meet the gold standard for pure andragogy research. For example, Anaemena's research did not target exclusively adult learners. In addition, his research was limited to assessing the cognitive achievement of students. Finally, his

andragogical instructional methods were quite limited and thus could be improved based on Rachal's criteria.

Langston (1990) assessed the difference between the effects of self-directed (andragogical) and teacher-directed (pedagogical) instruction on students' academic performance and overall satisfaction in two Political Science 101 courses at Gainesville College, a commuter junior college in Gainesville, Georgia. She found no significant difference in final course grade existed between these two groups. Langston also found no significant relationship with regard to students' satisfaction with the course. This study violates Rachal's (2002) criterion of adult status, however, as some of these college students are not considered adults for the purpose of andragogical research. These students were certainly on the borderline; however, it should be noted that 80% of Langston's subjects were employed at least 20 hours per week. These findings indicate that neither method of instruction is preferred over the other, but the setting must be considered. The status of the students as transitioning into adult status may explain why no significant difference was found.

Although no significant differences existed between groups regarding achievement or course satisfaction, there was a significant difference with respect to student satisfaction with learning projects based on type. Students who completed self-directed projects "perceived that they learned more" (Langston, 1990, p. 87) than did those who completed traditional projects. Langston (1990) concluded that these students also "were significantly more satisfied than the traditional project participants" (p. 87).

Clark (1991) also studied traditional college students, which should be avoided (Rachal, 2002). The learners in Clark's study were first and last year nursing students

and the average age of the students was 28.4 years. Clark's (1991) study sought to determine whether traditionally taught students and contract taught students exhibited differences regarding "self-directed learning skills and clinical performance" (p. 2). The assessment of clinical performance is an important issue because it satisfies Rachal's preference for performance-based assessment. "Using multiple linear regression, Chi-square, and analysis of variance" (p. 3), Clark's study found that students who were traditionally taught achieved significantly better in both clinical performance and with regard to self-directed learning skills. For the nursing school setting studied in Clark's case, pedagogy seemed to be more effective than andragogy.

Huntley (1985) assessed the effects of using andragogical instructional methods, including the use of contracts, rather than pedagogical ones with regard to personal hygiene instruction of dental hygiene students. Huntley studied four different groups: one each being taught by andragogical and pedagogical methods and one each combining each instructional method with the use of contracts. Huntley used performance-based assessment of participant achievement, assessing students' ability to perform personal oral hygiene at the end of the study. This assessment of achievement based on the learners' ability to complete a task is consistent with Rachal's criteria (2002). Huntley (1985) found andragogical methods "more effective" (p. 71) than pedagogical methods in instructing the students, observing that students taught by andragogical methods "showed significantly lower incidence of gingivitis" (p. 69). She also determined that the use of a written contract was better for learning than instructional methods which did not employ a written contract, but that difference is only significant when contracts are used in conjunction with pedagogical instructional methods. In summary, Huntley's ANOVA

analysis determined that both andragogical teaching methodologies and the use of contracts had statistically significant positive effects on the performance of the students. Students who were taught using andragogical methods, with the use of a learning contract, or both, had significantly fewer bleeding points, which were used as the measure of gingivitis and thus student performance. These results, which are different from Clark's (1991) findings, is somewhat surprising considering the similarity of the settings; both groups consisted of mostly female, post-secondary, health profession students. Even more interesting is that Huntley's students were younger, having a mean age of approximately five years younger than Clark's subjects. In fact, many of Huntley's students would likely be considered too young and their learning environment too much like a traditional undergraduate setting to comply with all of Rachal's (2002) criteria, but the realization that andragogy was effective in this case is interesting nonetheless.

Like Clark (1991) and Huntley (1985), French (1984) studied the effects of contracts in a higher education setting, but French studied adults only. French (1984) conducted a study to determine the effects of the use of contracts on adult students "working full time and often having family responsibilities" (p. 43) in a college setting. With regard to student satisfaction, French found that no significant difference existed between the group which used contracts and the classroom group. Moreover, student achievement between the two groups showed no statistically significant difference.

Farrar (1991) employed "thinking frames" that "are consistent with the Andragogical Model of Malcolm Knowles for teaching to more independent adult characteristics" (p. iii) to teach adult learners in a community college setting and examine

their procedural skills. She found no significant differences between the groups on “the dependent measure of Technical, Sensory, Formal, and Expressive qualities” (p. iv), and each of her null hypotheses was accepted. While her findings make no case for the use of andragogy over pedagogy, they do argue that andragogy is as effective as pedagogy. Farrar further hypothesized that had her study (which included a two-week period followed by a six-week period) been conducted over a longer stretch of time that differences would emerge, and suggested that future studies be conducted over a greater time frame.

Stevens (1986) conducted a study to “examine andragogical and pedagogical methods of teaching brushing and flossing to adult patients to determine what difference existed in skill performance and attitudes toward these preventive dental hygiene procedures” (p. 69). She used the Oral Hygiene Instruction Assessment (OHIA) to assess both the skill and the attitude of the learners for her study. Stevens found that teaching method had no significant effect on skill or attitude of the participants. She suggested a possible explanation for the non-significance: “The investigator does not find this surprising since adults have been taught various forms of dental health instruction pedagogically throughout their lives” (p. 71). Stevens found this non-significance to exist regardless of age or sex of participants or duration of instruction.

Hornor (2001) used a mixture of adult and traditional students, which is less preferable to Rachal (2002), in order to determine influences of andragogical instructional techniques on learning. Hornor (2001) studied these instructional methods on adult learners and traditional students alike who were “enrolled in four sections of Introductory Algebra ... at a community college in the rural southern part of the state of

Mississippi” (p. 2). Two groups, each containing both adult and traditional students, were formed. This two group structure is to be avoided whenever possible in future studies, and may negatively influence perceptions of the integrity of the results (Rachal, 2002). The control group was taught using traditional, lecture-only instructional methods. The experimental group made use of peer groups, self-directed projects, in class activities, and collaboration outside of class. It was determined that students in the experimental group achieved better than did those in the control group. The study also suggested that students employing the andragogical methods exhibited better attitudes than did those in the control group. These findings indicate that the use of andragogical methods in a college algebra setting tend to improve both students’ achievement and satisfaction.

McMasters (1996) studied the retention rates of first year students of a traditional university and whether or not significant effects on retention occurred as a result of andragogical methods of instruction including collaborative learning. McMasters concluded that andragogical methods of instruction “appear to be a viable alternative to traditional pedagogical method(s)” (p. 73), but could not conclude that andragogical methods were necessarily better. He found no significant increase in retention rates among learners who were taught using andragogical methods. Specific increases existed, but upon in depth analysis, “the null hypothesis (could) not be rejected” (p. 75). McMasters’ sample consisted of first year college students many of whom would not meet the required “adult status” of Rachal’s (2002) criteria.

Strawbridge (1994) studied the academic achievement and attitudes of students taught introductory philosophy by both andragogical and pedagogical instructional



methods. Strawbridge measured academic achievement by collecting learners' grade point averages and performance on two posttests. Student attitudes were determined through the completion of course evaluations. His study found that no differences existed between the students' achievement and attitudes amongst the two methods of instruction, and, "the andragogical methodology used proved to be neither more nor less effective than the traditional methodology in the present study" (p. 60). Similar to several previously discussed studies, Strawbridge's attempt to determine a distinction in the effectiveness of andragogical as compared to pedagogical methods should be considered cautiously. Strawbridge does not meet requirements set forth by Rachal (2002) for the study of andragogical methods. The researcher's role as the administrator for both groups is consistent with Rachal's wishes, but the educational setting studied is not. Strawbridge (1994) examined the effects of andragogical methods on students enrolled in an introductory philosophy course at a "small, private, liberal arts college" (p. 40). This detail does not comply with Rachal's criterion for the use of adults as subjects for andragogical research.

Hudson (2005) conducted his research in the post-Rachal (2002) period and thus should ideally adhere to as much of Rachal's criteria as possible. Hudson's study compared "the effectiveness of using a traditional lecture method of instruction and a collaborative learning method of instruction on the academic performance of traditional and nontraditional students" (p. 1). He found that although traditional and nontraditional students performed well under both styles of learning, both preferred andragogical methods. Hudson's study of both traditional and nontraditional students led him to conclude, "Malcolm S. Knowles' theory of andragogical instructional practices can be

relevant for both traditional and nontraditional community college students” (p. 105). His results suggested that andragogical methods are more effective with regard to student achievement and are more preferred by students than their pedagogical counterparts. Hudson found statistically significant differences in gain scores and academic achievement of both traditional and nontraditional students.

Wilson (2005) also studied student achievement and satisfaction resulting from andragogical methods of instruction. Wilson’s research focused on non-traditional graduate level MBA students’ achievement and satisfaction. Although Wilson could not determine a way to assess student achievement in a higher education environment that did not include paper and pencil style assessments, she acknowledged that her assessment methods were not as Rachal (2002) had recommended (p. 113). Wilson (2005) found “none of the andragogical constructs were significant predictors of learning” (p. 187). Learner preparation and climate were found to correspond with instructor satisfaction. Additionally, course satisfaction was impacted by andragogical methods, as “motivation, setting of learning objectives, and evaluation” (p. 196) were found to be positively related to student satisfaction with the courses.

Although Wilson’s research findings are of importance, arguably more significant is her contribution to the process of conducting empirical research regarding andragogy. Wilson’s study was “one of the first to successfully isolate adult learners” and “included many exploratory faculty and student characteristic variables, never before studied” (p. xi). Wilson wrote of the need to develop more predictive studies in order to expand the use of the theory. Wilson was able to construct evaluation methods which accounted for several elements of andragogy and also kept Rachal’s preferences fresh in her mind as

she conducted her research. In fact, Wilson's evaluation methods included an instrument that she created to measure andragogy: The Adult Learning Principles and Process Design Elements Questionnaire (ALPDEQ). Wilson wrote, "All indications are that ALPDEQ more successfully isolated and measured andragogy than any previous study" (p. 186).

These studies presented much analysis of the effects of andragogical instructional strategies at the collegiate level. Many of these studies did not comply with Rachal's criterion of "adult status" including Anaemena (1985), Clark (1991), Hornor (2001), Hudson (2005), Huntley (1985), Langston (1990), McMasters (1996), and Strawbridge (1994). Only Langston (1990) and Stevens (1986) offered the learner a significant role in the determination of course objectives—a staple of the andragogical methodology. Moreover, results regarding andragogical methods of instruction on attendance/retention, satisfaction, and performance were conflicting. For example, Huntley found a positive relationship with andragogical methods and achievement while Clark's research resulted in the discovery of a negative relationship.

#### Findings of Empirical Studies on Andragogy in Non-College Settings

Several empirical studies have been conducted in the past in order to determine the actual effects of andragogical instructional methods on outcomes like students' academic performance, attendance, and satisfaction. Presented here are the results from such studies which examined non-college settings with regard to these outcomes and Rachal's (2002) seven criteria. Many of these studies were conducted prior to the formulation of Rachal's guidelines and, in fact, were used by Rachal to help determine which criteria should be specifically proffered. These studies did not suffer from a lack

of “adult status” as did those in college settings, as each of them focused on the study of adults only, but other inconsistencies with Rachal’s criteria were identified as described below.

Beder and Carrea (1988) studied student attendance and teacher evaluation as results of andragogical instructional methods. Their research method involved the instruction of teachers in an adult education program on how to teach using the andragogical methodology. These teachers made up one of three groups of teachers for the study; the other two groups included a placebo group, which received training but not andragogical in nature, and a group which received no training at all. It was found that attendance was significantly higher for students who were taught by teachers who received training, either of andragogical or placebo in type. It was also found that “training had no significant impact on learner’s evaluation of instruction” (p. 85).

Cross (1988) attempted to determine the value of learning contracts regarding the rehabilitation outcomes of lumbar syndrome patients. Contracts were used in conjunction with ultrasound therapy and four groups were formed: one received both treatments, one received ultrasound and a placebo educational treatment, one received a placebo ultrasound in conjunction with the learning contract approach, and one received both of the placebo treatments. Cross (1988) concluded, “Analysis of the data using ANCOVA revealed no significant treatment induced differences between the four different groups” (p. 62). Although differences among treatments did not exist, alleviation of the symptoms occurred for members of every group. The results of his study do not make clear the exact significance of learning contracts in the rehabilitation process since groups with and without contracts fared just as well.

Cartor (1991) studied the effects of andragogy on “supervisors at a large government agency, who were attending a mandatory training program” (p. v). Cartor used several measures to determine learners’ achievement and satisfaction, including achievement measures, learning scales, and participant surveys. This study examined employees who were mandated to attend the said training program, which is not consistent with proper andragogical research methodology. One of Rachal’s (2002) criteria is voluntary participation—exactly the opposite of what we have in this study. No significant relationships were determined to exist between andragogical practices and achievement or satisfaction. However other factors, such as age of the learners, were found to be correlated to achievement.

Rosenblum and Darkenwald (1983) examined the effects of course planning on achievement and satisfaction amongst two different samples, writing, “Adult student participation in course planning did not result in higher achievement” (p. 151). In fact, the control groups in the study had higher mean scores for achievement than did the groups who underwent the course planning, but *t*-tests indicated the difference was not statistically significant. Neither was a significant difference found regarding satisfaction. Rosenblum and Darkenwald hypothesized as to why: “Extremely high motivation may have overridden any effects of the experimental treatment. In fact, the satisfaction scores were so high that the finding of no difference may have been due to ceiling effects” (p. 52). Madriz (1987) and Ogles (1990) also gave learners’ significant roles with respect to course objectives and content.

Madriz (1987) studied the effects of andragogical instruction on teachers in contrast to the effects of a traditional instructional approach. The instruction was

implemented as in-service training, and thus was not voluntary, which is not in line with Rachal's (2002) criteria. However, the teachers who were recipients of andragogical instructional methods played a significant role in the determination of course objectives. Madriz (1987) clarified:

The researcher explained the purpose of the meeting, involved the teachers in the process of formulating the learning objectives, and informed them of the options available in designing the learning experience and in selecting the instructional materials, techniques, and devices. (p. 78)

Paper and pencil measures were used to determine the outcomes of the various instructional approaches. Results of this study indicated statistically significant differences in the achievement and satisfaction of teachers according to instructional method. Teachers who were instructed via the andragogical approach scored higher on achievement tests and also were more satisfied than their counterparts who were instructed by non-andragogical means.

Ogles (1990) utilized learning contracts to determine the effects of an andragogical approach to the instruction of adult beginning readers. Though dropout numbers for the contractual group were not significantly less than among the control group, the contractual group did attend "significantly more bi-weekly tutoring sessions, and the contractual group also logged "significantly more weeks in the program than did the control group" (p. iv). Ogles, therefore, found that "learning contracts had a positive impact on attendance and persistence of adult beginning readers in a one-on-one volunteer literacy program" (p. iv). The implementation of learning contracts did not significantly contribute to reading gains as no significant differences were found between

the contractual and control groups. Contracts were used in a truly andragogical sense by some participants in this study: “some tutor-subject pairs took the contracting seriously enough to revise it according to the newly recognized needs of the student” (p. 74).

However, Ogles was quick to suggest improvements regarding the learning contract.

Familoni (1991) assessed the effects of collaborative learning versus non-collaborative learning on the achievement of “adult female beginning readers” (p. 70). The participants of Familoni’s study did so voluntarily and all were adults, thus meeting some of Rachal’s criteria. Familoni found that the reading scores of participants were not different in a significant manner with regard to instructional method used. However, the demographic data indicated that “only three of the 11 subjects who participated in the study were actually beginning readers” (p. 67), even though pretests had identified all participants as beginning readers. Ogles’ (1990) research is consistent with Familoni’s in the sense that reading level achievement was not significantly impacted by teaching style, but Ogles is more optimistic since she offers some positive outcomes of andragogical instructional methods, such as learners’ attendance and persistence.

Saxe (1987) examined the effects of andragogical methods, specifically peer interaction, on corporate employees’ training. Her research indicated that “a moderate level of peer interaction was significantly more effective than either high or low levels of peer interaction in raising the performance level of adult learners in a corporate training environment” (p. 136). Saxe also found, “Volunteer adult learners appear to be intrinsically motivated and not influenced by external rewards” (p. 154), which is a trait inherent to proper andragogy research as implied by one of Rachal’s (2002) seven criteria.

White (1989) examined the effects of particular instructional methods on certain learning outcomes of adults “enrolled in a legislatively mandated pesticide recertification program” (p. xiii). This mandate for learners to participate may affect the applicability of the results to andragogy since true andragogical research should occur when participation is voluntary and desired rather than mandatory. Even so, data revealed that 67% of the participants would have enrolled whether or not the instruction was mandated. It was also found that learners did not prefer any particular instructional method. The integrity of the findings, however, is subject to question because the participants ranged in age from 16 to 83, which means some of the participants were far too young to be considered adults. Although the ages of participants were varied, the forum for instruction may be viewed as “for adults” because it is not set in a traditional school setting. White concluded, “Attitude toward the instructional strategy received is an important contributing variable to the criterion variable of learning outcome” (p. 147).

Although the empirical research on andragogy in non-college settings was not affected by deviances from the “adult status” required by Rachal (2002) as the research from college settings did, this research exhibited other shortcomings. Each study discussed except for Beder and Carrea (1988) and Cross (1988) used traditional paper and pencil tests in some fashion to evaluate the effects of andragogical methods, particularly with regard to participant achievement. Rachal prefers assessment of achievement to be performance-based rather than “traditional” paper and pencil assessments. Only two studies, Cross (1988) and Ogles (1990), implemented learning contracts, although learning contracts may not have been appropriate for all of the studies. About half of the studies (Cross, 1988; Familoni, 1991; Saxe, 1987; White,



1989) did not use learner input in a significant way regarding the creation of desired learning outcomes (Rachal, 2002, pp. 214-215). Some of these empirical studies of andragogy in non-college settings also suffered from involuntary participation of subjects, including Cartor (1991), Madriz (1987), and White (1989).

#### Relationship of Past Andragogy Research to Current Study

Past research described in this chapter has evaluated a similar theme: the effects of andragogical instruction on an adult's learning of a task, but none were so delicately created as to comply with all of Rachal's requirements. This may be in part due to the fact that most of these studies were conducted prior to Rachal's assertions and, in fact, aided Rachal in his designation of the criteria. Results from previous research regarding the implementation of andragogical methods were mixed. For example, Cartor (1991) studied the effects of andragogy on "supervisors at a large government agency, who were attending a mandatory training program" (p. v) and found no significant relationships to exist between andragogical practices and achievement or satisfaction. Huntley (1985), Clark (1991), and Stevens (1986) all examined the ability of students who studied health related topics to learn andragogically, but found mixed results. Huntley's findings exhibited a relationship between andragogical methods and performance, while Clark's did not. Stevens, who studied a similar topic as Huntley, found no relationship to exist. These three studies each examined the instruction of learners via andragogical methods, but were done in college settings where a focus on adults was not necessarily present. None of the studies relate fully to the current study in the sense that none of them meet all of Rachal's criteria with regard to their research design.

Overall, 12 studies of learners in college settings were discussed in this chapter. Of these, 10 studied the effects of instructional method on student achievement or performance. Hornor (2001) and Hudson (2005) determined that andragogical methods had a significant positive effect on learner achievement. Amaemena (1985), Langston (1990), French (1984), and Strawbridge (1994) concluded that no significant difference existed between the two instructional methods with regard to learner achievement. Huntley (1985) and Stevens (1986) found that no significant difference in performance existed between the two groups. Clark (1991) determined that pedagogical methods were more effective than andragogical ones with regard to performance. Five of the 12 studies examined learner satisfaction as it relates to instructional methods. Hornor found greater satisfaction among those who learned by andragogical instructional methods when compared to those learning via pedagogical ones. Langston, French, and Strawbridge found no significant difference in learner satisfaction with regard to instructional method. McMasters (1996) was the only study which examined student retention as an outcome of instructional method. McMasters found no significant difference between instructional methods.

Overall, nine studies of learners in non-college settings were discussed in this chapter. Of these, six studied the effects of instructional method on student achievement or performance. Madriz (1987) and Saxe (1987) determined that andragogical methods had a significant positive effect on learner achievement. Cartor (1991), Rosenblum and Darkenwald (1983), Ogles (1990), and Familoni (1991) found no statistically significant difference in achievement between the two instructional groups. Cross (1988) determined that andragogical methods were useful with regard to performance, but could

not distinguish their effectiveness compared with other methods. Four of the studies examined learner satisfaction. Madriz found a statistically significant difference in learner satisfaction between andragogically and pedagogically taught learners, with those taught andragogically having greater satisfaction. Beder and Carrea (1988), Cartor (1991), and Rosenblum and Darkenwald (1983) found no statistically significant difference between groups with regard to satisfaction. Two studies (Beder & Carrea, 1998; Ogles, 1990) examined learner attendance as a result of instructional method. Both found improved learner attendance for the andragogical groups when compared to the pedagogical ones. It should be noted that although Ogles found this relationship, he found no significant difference in retention or dropout rates between the two groups.

The previous studies were also examined to determine their research designs. Two-thirds (14 of 21) of the studies were of quasi-experimental design and the other seven were experimental in nature. Interestingly, this proportion was not consistent when compared with the settings of the studies. Of the 12 studies in college settings all but one were quasi-experimental, with the lone exception being Farrar (1991). Of the nine studies set in non college environments, six (or two-thirds) were experimental. The only non college studies having quasi-experimental designs were Cartor (1991), Familioni (1991), and White (1989). Many of the quasi-experimental designs failed to be experimental because of a lack of randomness in their participant assignment. Studies conducted in college settings generally have less flexibility with regard to the assignment of the sample, and thus must necessarily exhibit the characteristics of quasi-experimental design. Experimental research designs are preferred over quasi-experimental ones, so the correlation between the research designs for studies conducted in college settings and

quasi-experimental studies provides additional rationale for pursuing studies in non-college settings such as non-formal education in nonprofit settings.

### Andragogy and Distance Education

#### *Origins of Distance Education in North America*

Historically, the primary aims of adult education in what is now the United States have changed based on the changing needs of local populations (Knowles, 1977). For example, during the Colonial era, adult education focused almost exclusively on religious and ethical matters, while after becoming a nation the emphasis was on leadership and citizenship. More recently however, more attention has been given to the economic realities of a global workforce that is becoming more technological and diverse. As the economy has transitioned from heavy industrialization to services and information technology (IT), the need for career and workforce training has never been higher. Likewise the demand for distance education among adults, which affords learners with the convenience of time and place (Cross, 1981), continues to grow.

Though Chautauqua was originally conceived in 1874 by its founders Dr. John Vincent and Lewis Miller solely for the training of Sunday school instructors, it rapidly expanded as an educational institution to include other participants and programming, including distance education. John Vincent, one of its chief proponents, believed that education should be available to the masses, not just an elite few. As a result, according to Stubblefield and Keane (1989), by the post- Civil War period,

The Chautauqua Institution combined residential education and leisure, and it extended into remote communities through the Chautauqua Literary and Scientific Circles, Women's clubs, local Chautauquas, traveling tent Chautauquas, and

lyceum lecture bureaus formed a national network, bringing Americans in both urban and isolated rural areas into contact with scientific, cultural, international and political ideas. (p. 30)

Today's expansive distance education offerings also represent an outgrowth of Chautauqua. Notably, "The first significant distance education effort in North America was part of the Chautauqua movement" (Garrison, 1989, p. 223). In 1883, William Rainey Harper joined the movement and helped the Chautauqua University to receive its charter. The College of Liberal Arts, a component of the Chautauqua University, operated primarily as a "correspondence school," with Harper as its principal. By 1892, Harper had ascended to the presidency of the University of Chicago, where he integrated his own beliefs concerning distance education within the university's extension offerings thereby earning him widespread recognition "as the father of correspondence education in North America" (Garrison, 1989, p. 223).

Although popular, correspondence education as a form of distance education was not without its naysayers. Dropout rates were high, and instructor feedback was necessarily slow. Garrison (1989) wrote,

The problem of slow and irregular feedback in the correspondence educational transaction has caused distance educators to explore the use of rapidly evolving communications and computer technology. The adoption of these new technologies in some situations has changed drastically the educational transaction at a distance and certainly has made distance education a more complex and exciting field of practice. (p. 224)

*Strategies for Implementing Andragogy in Distance Education Settings*

According to Merriam and Brockett (1997), modern “distance education reflects many of the technological advances that allow instruction to take place between geographically separated teachers and adult students” (p. 10). Because of these advances, instructors in both formal and informal distance education classrooms may replicate in a virtual learning environment the communication transactions within traditional classrooms. Likewise, the assumptions of andragogy may also be replicated through online delivery platforms.

Cercone (2008) presented both an overview for implementing key adult learning theories within online instructional programs for adults and strategies for creating an appropriate environment based on learner needs. “The future of adult online learning research may be based on the theories discussed in this article, even though most of the theories were developed almost 20 years ago and in traditional classroom environments” (p. 151), Cercone (2008) concluded. Suggestions for implementing andragogy, described by the author as “the most comprehensive” theory (Cercone, 2008, p. 150), are outlined below using Knowles’ (1980) assumptions of andragogy as an organizational tool.

1. “As individuals mature, their self-concept moves from one of being a dependent personality toward being a self-directed human being” (Knowles, 1980, p. 43).  
Instructors should engage learners by serving as a guide or facilitator and provide frameworks that will encourage adult learners to become more self-directed (Cercone, 2008). Toward this end, online facilitators may
  - “Encourage learners to identify resources and devise strategies for using resources to achieve objectives.”

- “Encourage learners to formulate their learning objectives, giving them more control over their learning. It is important for the instructor to discover what the participants need or want to learn.”
- “Provide regular, consistent communication to individual learners and groups.”
- “Teach inquiry skills, decision-making, personal development, and self-evaluation of work.”
- “Make regular announcements or updates and establish regular online office hours.”
- “Assure learners that discussion board postings are being read.”
- “Increase interactions with embedded practice and feedback sequences.”
- “Embed content in authentic context if technology allows.”
- “Require learners to synthesize and problem solve, using the information in new ways.”
- “Have learners manipulate objects on the screen if appropriate.”
- “Develop peer-learning groups.”
- “Periodically review goals. Have students reflect and discuss.”
- “Provide students with multiple resources of information that include differing viewpoints from diverse authors.”
- “Acknowledge the accumulated experiences of the participants as valuable educational resources.”
- “Use learning contracts, group projects, role playing, case studies and simulations to enhance self-direction.”

- “Use hyperlinks to allow students to develop their own path. If they know the topic, they can skip it.”
  - “Provide flexibility in assignments that allow students to work ahead.”
  - “Divide learning into small manageable units or subunits that can be completed in relatively short amounts of time for logical starting and stopping points.”
  - “Allow learner choice of assignments, projects, or research topics (consider learning contract).”
  - “Encourage and reinforce self sufficiency through timely feedback.”
  - “Develop a student portfolio or personal scrapbook.”
  - “Incorporate text signals such as “this is a long unit,” “this is very important content,” proceed to lesson six” (pp. 154-155).
2. “As individuals mature, they accumulate a growing reservoir of experience that becomes an increasingly rich resource for learning” (Knowles, 1980. p. 43).

Instructors should connect new information to past experiences which must be appreciated and respected as meaningful (Cercone, 2008). Toward this end, instructors may

- “Encourage all students to post responses to questions, read other comments, and reflect using tools such as threaded discussions.”
  - “Encourage learners to share with other students their derivation of meaning and their progress through discussion postings, reflection papers that are posted, or email.”



- “Hold debates, create multifaceted projects with deadlines for public display, introduce surprise, suspense, and disorder in the midst of routine and ritual. Ask learners to link ideas to other subjects.”
  - “Recognize that it is important to “unlearn” old beliefs and allow learners time to work through conflict” (p. 156).
3. “As individuals mature, their readiness to learn becomes oriented increasingly to developmental tasks of their social roles” (Knowles, 1980, p. 43).

Instructors should make the relevancy of the course obvious and present goals and objectives early in the course (Cercone, 2008). Toward this end, online facilitators may

- “Do a needs assessment and a student self-assessment prior to class starting. Relate this information to the class. Recognize the value of experience.”
    - “Include tasks that let the participants use their knowledge and experience.”
    - “Tell why the topic or link is important.”
    - “Provide practical information with examples.”
    - “Link new topics to what has been discussed or read.”
    - “Open the class with introductions that include personal and professional background. Instructor should do the same.”
    - “Involve learners in diagnosing their own needs” (p. 157).
4. “As individuals mature, their time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly, their orientation toward learning shifts from one of subject-centeredness to one of performance-centeredness” (Knowles, 1980, p. 43).

Instructors should make clear to learners how the course activities are both problem-centered and applicable to their current lives (Cercone, 2008). Toward this end, online facilitators may

- “Ensure that students write their course goals in the beginning of the course so they can relate the course goals with their current needs and issues.”
  - “Explain how the course information will be of use to the learners.”
  - “Provide enough flexibility to allow student’s input on issues that may be addressed by the whole class.”
  - “Provide models of “best practice” behavior to let students know what they are doing compared to a known model.”
  - “Maintain consistent guidelines during the course.”
  - “Involve learners in diagnosing their needs to help trigger internal motivation” (pp. 157-158).
  
- 5. “The andragogical model predicates that the more potent motivators are internal—self-esteem, recognition, better quality of life, greater self-confidence, self-actualization, and the like” (Knowles & Associates, 1984, p. 12).

Instructors should encourage learner reflection as a motivator. In addition, adults react more positively to learning when the environment is non-threatening (Cercone, 2008).

Toward this end, online facilitators may

- “Apply concepts to tasks or problems.”
  - “Set the level of difficulty at the correct level. It should challenge but not be too challenging which could frustrate the learners.”
  - “Set rewards for success” (p. 158).

Lastly, regarding climate setting, Cercone (2008) suggested that online facilitators of adult education may

- “Allow the learner to voice his or her own opinion and treat him or her as equal in the learning process.”
- “Recognize that individuals have many perspectives and bring these to the classroom; these may be a result of their religion, gender, ethnicity, class, age, sexuality, and/or physical abilities. Acknowledge these.”
- “Provide an open environment so that the students are allowed to disagree with the instructor. Not all learners bring the same ability to think critically, analyze results, etc. Plan accordingly.”
- “Establish an environment that learners feel safe and comfortable in expressing themselves and feel respected for their views.”
- “Help students with similar interests find each other.”
- “Know when to pull back in a discussion and let the students go.”
- “Keep up with the discussion postings, and act as a summarizer, reflector, and source of external help if the group fails.”
- “Recognize learner’s individual talents and contributions” (pp. 158-159).

Blondy (2007) offered ideas similar to Cercone for implementing the assumptions of andragogy in both formal and informal online learning environments. Both authors, however, cautioned against using an overly purist or epistemological definition of the assumptions when designing online programs for adults. Instead, Cercone (2008) wrote, “Not every recommendation can be followed, but they form the basis of the author’s proposal to develop online training for adults” (p. 142). For example, Cercone (2008)

realized that some adults are more self-directed than others. Consequently, some of them will need assistance to become more self-directed.

Similarly, Blondy recognized Knowles' assumptions as "an ideal starting point" from which to prescribe practice. Likewise, Blondy (2007) argued for balance when implementing andragogy in a virtual environment, positing "the type of course being taught and individual student needs can help create a learner centered approach to online education" (p. 116). Though not referring specifically to nor excluding online learning, Rachal (2002) strongly argued for "certain standards" in research designs involving andragogy in general while also "recognizing that mathematics-like precision is a holy grail quest" (p. 219).

The current study was designed to assess the reactions to learning (course evaluation ratings), completion rates, achievement growth (level of evaluative skill), and grant writing performance scores of the participants as outcomes of andragogical and pedagogical online learning modules. The researcher satisfied Rachal's (2002) seven criteria and, as such, is the first study of its kind to do so. The participants consisted exclusively of employed adult volunteers from the identified population and thus avoided having to combine adults with traditional students. The researcher served as facilitator for both the andragogical and pedagogical modules thereby avoiding personality variations as a delimitation of the proposed study. Volunteer learners were made aware of the program objectives beforehand and thus exhibited what Rachal (2002) called "a clear, high, and pre-existing congruence" with them (p. 221). Even so, a learning contract that was collaboratively determined between the learner and instructor, as well as opportunities to both develop and participate in online bulletin board discussions that

encourage the sharing of knowledge through experience and best practices, afforded learners in the andragogical module with avenues to identify strategies and resources for improving their own content knowledge. Under the proposed research, the performance assessment in the form of a written proposal to a foundation appropriately measured what Rachal (2002) referred to as “the ability the learner sought in undertaking the learning experience” (p. 222). Learner satisfaction was measured by course evaluation surveys and completion rates were measured empirically. The research method, as briefly described here and more in depth in the next chapter, complies with each of Rachal’s criteria for andragogy researchers.

The current study was planned to compare the effectiveness of andragogical or student centered instruction, and pedagogical or teacher-centered instruction, between staff members of nonprofit social service agencies who participate in or complete online learning modules on foundation grant writing.

## CHAPTER III

### METHODOLOGY

#### Introduction

The purpose of this study is to compare the outcomes for staff members of nonprofit social service agencies who participate in or complete an andragogically-facilitated or a pedagogically-conducted online learning module on foundation grant writing with respect to specific variables. These variables include the self-reported reaction to learning (course evaluation ratings), program completion rates, achievement growth (level of evaluative skill), and grant writing performance scores. The self-reported reaction to learning is a continuous variable measured by a revised course evaluation instrument that was used by Strawbridge (1994). Though originally conceived as purely quantitative in design, two open-ended response items were added to the course evaluation instrument used in the present study.

According to Fraenkel and Wallen (1996), one distinct difference between qualitative rather than quantitative research methodologies is the researcher's "preference for hypotheses that emerge as study develops" (p. 442). Narrative descriptions are frequently used when summarizing the results of qualitative research, while quantitative approaches necessarily involve only the comparison of numeric data. The strength of this qualitative method rests on "the fact that data collection is not constrained by predetermined categories of analysis" (Patton, 1987, p. 9). Patton emphasized that the resulting qualitative information offers "depth and detail through direct quotation and careful description" (p. 9).

Achievement levels were measured as continuous variables on a scale from 0 to 100. Achievement growth was calculated using a simple change formula—difference in pre and post achievement levels. Program completion is a dichotomous variable that was comprised of those who completed the program and those who did not complete the program as previously defined. Grant writing performance scores were also on a 100 point scale and determined by a panel of two experts based on the students' written grant proposals. The remainder of this chapter will discuss the research design used for this study, the appropriateness of the design, the population, sampling plan, sample size, instrumentation and methods of data analysis.

#### Research Design and Appropriateness

A quantitative experimental design was utilized for this study because it provides the researcher with the ability to compare two different levels (andragogical and pedagogical learning modules) of an independent variable with that of several dependent variables (reaction to learning, completion rates, achievement growth, and grant writing performance scores) in order to determine if there are statistically significant differences (Cozby, 2001). When the independent variable is categorical the researcher is then able to examine the differences that may exist between the two groups. In other words, this allows the researcher to determine if there are differences between staff members of nonprofit social service agencies who complete an andragogically-facilitated and a pedagogically-conducted module when it comes to the students' reaction to learning (course evaluation ratings), completion rates, achievement growth (level of evaluative skill), and grant writing performance scores.

The design is a true experimental design because the researcher randomly assigned the volunteer participants to the andragogically-facilitated and pedagogically-conducted modules (Cozby, 2001). Because the research design is a true experimental design, the researcher is able to determine whether the independent variable caused a change in the dependent variable (Keuhl, 2000). In the context of this study, the researcher determined whether there was a difference between the two learning modules when it comes to the students' reaction to learning, completion rates, achievement growth, and grant writing performance scores; and whether instructional methodology influenced or established causality for such differences. Participant responses to open-ended questions within the course evaluation instrument added depth to the quantitative findings.

The research design is quantitative because comparisons were made between the differences in four dependent variables based on one independent variable. This means that the researcher could quantitatively assign numerical or group values to the variables to determine statistically significant differences. By assigning numerical or group values to the variables in the study, the results were quantified by using statistical procedures that include the analysis of variance (ANOVA) and chi square test.

The experimental design is appropriate for this study as the primary objective is to determine whether there are differences between combinations of two variables. It was ultimately decided however that a quantitative research design, coupled with open-ended questions within the course evaluation instrument, was most appropriate for the current study because the qualitative responses may be reviewed to detect themes or trends and support the validity of the quantitative results through both narrative depth and triangulation. Conversely, had a qualitative only design been used, the researcher would



not have been able to assess a direct relationship between two variables as a result of the open-ended questions (Cresswell, 1994).

A strictly observational or descriptive study design could also have been considered; however, the researcher would not have been able to determine whether there was a difference between the two modules. This is because the purpose of the observational or descriptive design is to just observe and record information about the participants that describe factors, such as the type of learning module, rather than determine a relationship between the data that is collected (Cozby, 2001). Therefore, by using an observational or descriptive study design the researcher would not have been able to determine whether there was a difference in the reaction to learning (course evaluation ratings), completion rates, achievement growth (level of evaluative skill), and grant writing performance scores for participants in the andragogically-facilitated and pedagogically-conducted modules.

In order to address the hypotheses of this study, two different statistical procedures were used. These include an analysis of variance (ANOVA) as well as a chi square test for independence. The ANOVA was used since the purpose is to determine whether there was a significant difference between two or more levels of independent populations when it comes to the average scores obtained for a continuous dependent variable. For the purpose of this study, the independent populations were comprised of participants who are in the andragogically-facilitated and pedagogically-conducted modules. The dependent variables included reaction to learning (course evaluation ratings), achievement growth (level of evaluative skill), and grant writing performance scores. A chi square test was then used to determine whether there was a difference

between the andragogically-facilitated and pedagogically-conducted module groups when it comes to the completion rates of the participants. The chi square test is appropriate for this study because both the andragogically-facilitated and pedagogically-conducted modules and completion rates are dichotomous variables, as previously defined.

### Population and Sampling

According to Rachal (2002), “The andragogy researcher should examine or design learning situations in which the learner wants to participate for her own personal fulfillment or some other internal motivator” (p. 219). He further noted, however, that professional development would be acceptable by Knowles if not required or resulting in negative consequences for those who choose not to participate. Regarding control and experimental groups, Rachal (2002) wrote:

It is not desirable to have two groups where one combined group of adults and traditional students receives a pedagogical treatment, even when the adults are separated in the analysis. Although higher education settings are popular and convenient for andragogy studies, the problem can be avoided altogether by restricting future studies to settings that are exclusively adult. (p. 220)

The current experimental study, therefore, was restricted wholly to adult employees of nonprofit organizations. By doing so, the researcher avoided combining adults and traditional students within each treatment.

In particular, the volunteers for the study were recruited from among the population of approximately 673 adults who are members of a statewide association for nonprofit professionals located in the Southeastern United States. A convenience sample of 52 potential volunteers was identified. It was anticipated that attrition would result in

approximately 42 to 46 total completers, or 21 to 23 per group. By March 8, 2009, approximately 673 e-mails were disseminated to the members of community-based nonprofit organizations noted previously. The purpose of the letter was to inform these agencies of the primary module objective, format, timelines, computer requirements and registration procedures. Once confirmed via e-mail, each volunteer, which included both members and other staffers, was randomly assigned to either the andragogical or pedagogical online learning module on foundation grant writing. Rachal (2002) noted that such random assignment is ideal, preferring it to in situ groups that are most commonplace in adult education research. Each module commenced during the last week of March, 2009, required an estimated 16-hour commitment of time, and ended four weeks later in order to meet with time limitations of busy professionals.

The researcher served as facilitator for both modules, thereby avoiding personality variations as a delimitation of the proposed study. The researcher secured approval from the director of the University's Learning Enhancement Center for use of the University's Blackboard Learning System, version CE6, as the online learning platform for the project.

The minimum projected sample size for this study was 42. Therefore, a minimum of 21 participants in both the andragogical and pedagogical online learning module groups were sought in order to determine whether there is a difference between the groups. This was based on there being two independent groups included in the study (andragogical or pedagogical online learning module groups). The preferred sample size for this study was calculated in G\*Power, which is a computer program used to estimate the minimum number of participants required to make statistical inferences. The final

tally resulted in at least partial data on 33 participants and included 16 subjects who received an andragogical learning module and 17 subjects who received a pedagogical learning module. Among 33 participants, 28 were also completers and included 14 subjects who received an andragogical learning module and 14 subjects who received a pedagogical learning module.

### Instrumentation

A demographic questionnaire was used to gather information about each of the participants in the study. This included obtaining information regarding the participants' (1) gender, (2) educational level, and (3) experience writing and (4) winning grants over the last five years. This information was collected prior to the start of each module to verify there were no statistically significant differences between the total means for each dependant variable, when applicable, in the study as a function of learning group.

To measure reaction to learning, a course evaluation instrument similar to the one used by Strawbridge (1994) was employed. The instrument was designed to measure a learner's satisfaction with the instructor and the course requirements and procedures (Strawbridge, 1994). For the purpose of the current study, some of the questions were modified so that they related to the current study topic. In total there were 26 Likert scale items that were used on the evaluation instrument with three subscale scores being measured: (a) the perception of the personal dimension of the teacher, (b) the instructional dimension of the teacher, and (c) the course requirements and procedures (Strawbridge, 1994). Each of the questions on the course evaluation instrument used by Strawbridge was based on a 5-point Likert scale that had a minimum score of 1 (strongly disagree) and a maximum score of 5 (strongly agree). However, for the current study, the

Likert scale used within the course evaluation instrument had a minimum score of 5 (strongly disagree) and a maximum score of 1 (strongly agree), with a rating of 1 representing a higher or better course evaluation rating.

Some example questions that were asked on the course evaluation instrument were “Prepares well for each class,” “Seems enthusiastic about each subject,” “Is sympathetic/courteous,” and “Recommend course and instructor.” For the purpose of the current study, some of the questions were modified or omitted so that they related to the current topic. This included not using items 12 “Personal Appearance/Appropriate,” 21 “Tests based/assigned materials,” or 22 “Graded work is returned promptly” from the evaluation form presented in Appendix F02 of Strawbridge (1994, p. 132) as well as Appendix A of this dissertation.

Learners’ achievement growth (level of evaluative skill) was also measured. Prior to and upon conclusion of each learning module, participants scored a pre-selected foundation grant proposal to determine whether it meets basic threshold criteria as stated in program guidelines. Achievement was measured by comparing the group scores received to the mean scores resulting from review of the proposal by two experts to determine if there was a statistically significant difference between mean group scoring by participants and experts, respectively. Grant-writing performance scores were measured after the modules concluded.

Grant writing performance scores were measured by a panel of two experts. Scores were translated into a 100 point scale for comparative purposes. To provide a user-friendly review process and reduce anxiety, however, participants in the andragogical group received only qualitative comments for improvement rather than

actual scores. The scores were still computed for research purposes, but the participants in the andragogical group did not receive them, unlike their peers in the pedagogical group.

### *Validity*

The validity of an instrument refers to how well the instrument does at representing the information that is collected (Cozby, 2001). In other words, the validity of the survey instrument illustrates the ability to accurately measure the desired variable or construct that is of interest. The validity of the instrument used by Strawbridge (1994) was shown by using construct validity. A factor analysis was conducted on a set of archival data obtained from 192 students. Based on the results of the factor analysis there were three distinct factors that were observed: the perception of the personal dimension of the teacher, the instructional dimension of the teacher and the course requirements and procedures. The perception of the personal dimension of the teacher was comprised of questions 1 and 5 – 13, the instructional dimension of the teacher was comprised of questions 3, 14, 15, 18, 20, 24 – 26, and the course requirements and procedures section was comprised of questions 16, 17, 19, 21 and 22. Content validity of the course satisfaction instrument used for the current study, as derived from Strawbridge (1994), was determined by two experts with doctoral degrees and a combined 18 years of experience in grant writing and administration.

### *Reliability*

The reliability of an instrument is a measure of the consistency between items used to measure certain behaviors or constructs (Cozby, 2001). In terms of illustrating the reliability of an instrument, two types of measurements could be calculated. These

include the internal consistency/reliability measurement as well as the test/re-test measurement for the items included on the instrument. The reliability of the survey instrument was shown by using Cronbach's alpha coefficients for internal consistency/reliability measures. It was found that based on the Cronbach's alpha coefficients that the Strawbridge (1994) instrument was a reliable tool for measuring the course evaluation ratings of the participants. In fact, a reliability of .97 was observed by Strawbridge (1994) by using archival data from a group of 192 students.

#### Data Collection

Data for this study were obtained by administering the survey instruments and assessments to the participants via an online learning platform, Blackboard CE 6.

Volunteers were first sent a welcome e-mail including an overview of the study and login information. The overview included a description of the study as well as its purpose, timeframes, and estimated duration.

After agreeing to participate, the volunteers were then randomly assigned to either the andragogical or pedagogical online learning module group for the study. Each volunteer was given a unique number (i.e. Participant 1, Participant 2, Participant 3, etc.) then randomly assigned to one of the two groups. Toward this end, a random permutation of the volunteer numbers from 1 to n was generated using a random sequential number generator (Keuhl, 2000). For this study, n is the number of volunteers included in the sample. The first half of the volunteers in the random permutation were assigned to the andragogical group, while the second half were assigned to the pedagogical group. The random permutation was generated by using a random sequential number generator

program available online from Haahr (2008). This method ensured an equal number of volunteers in each group.

The volunteers were made aware that at any point in the study they could withdraw without any consequences. Along with the consent form was a “yes” or “no” response option. Those volunteers who selected “no” were redirected to a window thanking them for considering taking part in the study, as well as providing an option to participate in an alternative learning activity once the study concluded. In such instances, no further information was collected. On the other hand, if the volunteer selected “yes,” then he/she agreed to the terms of the study and was prompted to complete the Demographic Questionnaire before accessing the pre-assessments and module content.

Once all the measures were completed, the researcher imported resulting data into a computer spreadsheet for analyses such that each of 52 initial volunteers received a unique identification number. This identification number was used in order to specify which responses corresponded to the participants in the study, while maintaining strict confidentiality. The data were saved on a password protected personal computer. By doing so, the confidentiality of each participant in the current study was assured so that no personal information is accessible by individuals other than the researcher. The data shall be kept on file for a period of three years after which it will be destroyed and deleted from the hard drive.

### Treatment of Groups

#### *Andragogically-Facilitated Learning Module*

1. The adult learners in the andragogical group utilized a learning contract, mutually agreed upon between the learner and facilitator, in order to select



online resources and educational strategies from which to gain additional knowledge.

2. The adult learners in the andragogical group were informed of the primary learning objectives before volunteering to participate. As a result, this research proposal does include what Rachal (2002) described as “a clear, high, and pre-existing congruence between the instructor’s and the learner’s objectives” (p. 221).
3. The adult learners in the andragogical group were asked to form groups to both develop and participate in online bulletin board discussions each week, and respond to at least two other postings from classmates. Discussions related to the primary learning objectives and readings, and emphasized the sharing of learner experiences.
4. A performance assessment post-test in the form of a written proposal to a foundation appropriately measured what Rachal (2002) referred to as “the ability the learner sought in undertaking the learning experience” (p. 222). In addition, the differences in learners’ pre-post ability to score a pre-selected grant proposal measured achievement growth. Prior to and upon conclusion of each learning module, participants scored a pre-selected mock foundation grant proposal to determine whether it meets basic threshold criteria as stated in program guidelines. Achievement was measured by comparing the group scores received to the mean scores resulting from review of the proposal by two experts to determine if there was a statistically significant difference between mean group scoring by participants and experts, respectively. To

avoid the anxiety often caused by traditional paper-and-pencil tests, however, the performance and achievement assessments were scored for group comparison purposes but participants in the andragogical group received only suggestions for improvement. Finally, each participant who completed an online module was asked to submit a course evaluation instrument consisting of Likert scale items and two open-ended questions.

#### *Pedagogically-Conducted Learning Module*

1. The adult learners in the pedagogical group followed a set curriculum that was developed by the instructor.
2. The adult learners in the pedagogical group were informed of the primary learning objectives before volunteering to participate. As a result, this research project includes what Rachal (2002) described as “a clear, high, and pre-existing congruence between the instructor’s and the learner’s objectives” (p. 221). Though such congruence existed here, it was not necessary since that is not a requirement of pedagogical teaching.
3. The adult learners in the pedagogical group were asked to submit responses for each assignment to the instructor.
4. A performance assessment post-test in the form of a written proposal to a foundation appropriately measured what Rachal (2002) referred to as “the ability the learner sought in undertaking the learning experience” (p. 222). In addition, the learners’ pre-post abilities to score a pre-selected grant proposal measured achievement levels and achievement growth. Prior to and upon conclusion of each learning module, participants scored a pre-selected mock

foundation grant proposal to determine whether it met basic threshold criteria as stated in program guidelines. Achievement was measured by comparing the group scores received to the mean scores resulting from review of the proposal by two experts to determine if there was a statistically significant difference between mean group scoring by participants and experts, respectively. Finally, each participant who completed an online module was asked to submit a course evaluation instrument, consisting of Likert scale items and two open-ended questions, to measure learners' satisfaction with the course and its instructor.

#### Operationalization of Variables

The operationalization of the variables is important to provide information regarding how each of the variables was to be computed. This in turn provided evidence for the types of analysis used in this study. Therefore, the operationalization for each of the quantitative variables in the study is described below.

#### *Dependent Variables*

The dependent variables for this study are the self-reported reaction to learning (course evaluation scores), program completion rates, achievement growth (level of evaluative skill), and grant writing performance scores. The self-reported reaction to learning was operationalized as a continuous variable and calculated by summing responses to the Likert scales provided on the course evaluation instrument. By doing this, a lower score (1= strongly agree; 5 = strongly disagree) represented a higher or better participant rating. The program completion rates were operationalized as dichotomous variables, based on whether or not the participants "Completed" the

program. The scores for achievement level were operationalized as a continuous variable and ranged from 0 to 100. The difference between the pre- and post-test scores was calculated so that achievement growth could be determined. Grant writing performance scores resulted from a blind review of the proposals by a panel of two experts. These scores were translated into a 100 point scale for comparative purposes.

#### *Independent Variable*

The independent variable for this study is the type of learning module the participant received. For this reason, the variable was operationalized as a dichotomous variable. This means that the variable is comprised of two distinct populations. These populations include those who participated in or completed an andragogically-facilitated or a pedagogically-facilitated module.

#### *Demographic Variables*

The demographic variables that were collected for each participant included: gender, educational level, number of grants written over the last five years, number of funded grants written over the last five years, and age. In each case, these variables were operationalized as categorical variables.

#### Data Analysis

The data analysis for this study was comprised of summary statistics, ANOVAs, chi square tests, and trends in responses to open-ended questions within the course evaluation instrument. Each of these quantitative analyses was conducted in SPSS Version 16.0®.

### *Demographic Variables*

Demographic variables were assessed to determine whether they were significantly related to the type of module to which the participants was randomly assigned. This was done to make certain that the participants assigned to each module were representative of the sample. In other words, analyses were conducted to assure that there were no significant differences between the demographic characteristics of participants as a function of learning group.

### *Descriptive Statistics*

Descriptive statistics that were computed for the current study include frequency distributions as well as measures of central tendency. This was done to examine the distribution of the variables included in the current study. Though not necessary under the current study, the researcher could then have made transformations to the data so that the assumptions for the ANOVA and chi square test for independence are met. This includes the assumptions of normality, linearity, constant variance and independence of the study participants.

For the frequency distributions, the number and percentage of each occurrence was presented for the categorical or dichotomous variables in the study. These include the demographic characteristics of the participants. The measures of central tendency include presenting the mean, standard deviation, minimum, and maximum values for the continuous variables in the study. These variables include the reaction to learning (course evaluation ratings), achievement growth scores (level of evaluative skill), and grant writing performance scores of the participants.

### *Analysis of Variance*

For hypotheses number one, three, and four (stated in Chapter I), an ANOVA was conducted. The purpose of the ANOVA is to determine whether there is a statistically significant difference between two or more independent populations when it comes to their average scores measured for a dependent variable (Moore & McCabe, 2006). For this study there were two independent populations, the andragogically-facilitated and pedagogically-conducted modules. The dependent variables included reaction to learning (course evaluation ratings), achievement growth (level of evaluative skill), and grant writing performance scores for both of the groups. The ANOVA was used to compare the total average course evaluation scores as well as mean achievement growth and performance scores for both of the groups. The scores from the andragogical group were withheld from the learners, however, and used for research purposes only.

### *Chi Square Test*

For hypothesis number two (stated in Chapter I) a chi square test was used to determine whether there is a significant relationship or difference between two variables that are categorical in nature. In general, a cross-tabulation or contingency table was created for the categorical variables indicating the frequency in which the corresponding categories of the categorical variables occur together. A significant relationship between the two variables indicates that the variables are not independent of one another, while a non-significant relationship would indicate that the variables are independent of one another. For the purpose of this study, the variables that were included in the chi square test were the type of module that each participant received and completion rates of the participants.

The test statistic that was obtained is a statistic from the chi square distribution. If this statistic exceeded the critical chi square value then the hypothesis of there not being a significant difference in program completion rates for the different modules would be rejected. This would indicate that the completion rates of the participants would depend on the type of module, thereby resulting in different retention rates for each module in the study.

### Summary

Chapter III discussed the research methodology that was employed in the current study, which was that of a true experimental research design using a combination of both quantitative and qualitative methods. Also included in Chapter III was information on the data collection process as well as statistical analyses, which include ANOVAs, a chi square test for independence, and the identification of trends in responses to qualitative open-ended questions within the course evaluation instrument. Also presented in this chapter were discussions of the appropriateness of the research design, the proposed hypotheses, the population and sample size. The following chapter then presents the results for this study.

## CHAPTER IV

### RESULTS AND FINDINGS

The objective of this study was to compare the effectiveness of an andragogical instructional module, and a pedagogical instructional module, between staff members of nonprofit social service agencies who participated in or completed an online learning module on foundation grant writing. Effectiveness was measured based on participants' reaction to learning (course evaluation scores), program completion rates, achievement growth (level of evaluative skill), grant-writing performance scores, and a qualitative assessment of the open-ended questions within the course evaluation instrument. The first portion of this chapter details the results of the quantitative data and qualitative responses, followed by a summary section.

This research was designed and targeted to have a sample including 42-46 completers, or 21-23 completers in each instructional group. Only data on completers were to be used. However, because there were not enough completers and usable data was available from certain non-completers or participants, all available data from each instrument were used. Although 52 volunteer staff members of nonprofit agencies initially expressed interest in participating, the final tally resulted in at least partial data on 33 participants and included 16 subjects who received an andragogical learning module and 17 subjects who received a pedagogical learning module. Among 33 participants, 28 were also completers and included 14 subjects who received an andragogical learning module and 14 subjects who received a pedagogical learning module.



## Quantitative Results

In order to properly guide the study, the four following hypotheses were put forth:

*H<sub>1</sub>*: There will be a statistically significant difference ( $p = .05$ ) in self-reported reaction to learning (course evaluation scores) between staff members of nonprofit social service agencies who participate in or complete an andragogically-facilitated or pedagogically-conducted online learning module on foundation grant writing.

*H<sub>2</sub>*: There will be a statistically significant difference in program completion rates between staff members of nonprofit social service agencies who participate in or complete an andragogically-facilitated or pedagogically-conducted online learning module on foundation grant writing.

*H<sub>3</sub>*: There will be a statistically significant difference in the achievement growth (level of evaluative skill) between staff members of nonprofit social service agencies who participate in or complete an andragogically-facilitated or pedagogically-conducted online learning module on foundation grant writing.

*H<sub>4</sub>*: There will be a statistically significant difference in performance between grant proposal scores received by staff members of nonprofit social service agencies who participate in or complete an andragogically-facilitated or pedagogically-conducted online learning module on foundation grant writing.

Prior to answering these questions, the power of tests were calculated; constructed variables of interest were described; and the reliability of Likert scale measures on course evaluation questionnaires were evaluated. The descriptive statistics on variables of interest including mean, standard deviation, and statistics skewness for continuous

variables, and frequency and percentage of categorical variables were summarized. In testing the hypotheses, one way ANOVAs, a chi-square test and correlation analyses were conducted and the results are presented hereafter.

#### *Power Analysis of Test*

There were 33 participants in the study including 16 who received an andragogical learning module and 17 who received a pedagogical learning module. These two groups of participants were used to test the differences between the two modules. Assuming a moderate effect size ( $f^2=.25$ ) and significance level  $=.05$ , the computed power for testing the difference between the two groups using an ANOVA methodology was calculated to be .38 using the computing program G\*Power. When testing an association between two categorical variables by chi-square, the power for testing expected effect size ( $r=.3$ ) was found to be .48 assuming a significance level .05. This implies that the power of the ANOVA test or the chi-square is relatively low due to the small sample size.

#### *Description of Dependent Variables*

*Achievement* measured participants' ability to evaluate a pre-selected grant proposal both prior to and upon completion of an andragogical or pedagogical learning module. The growth in achievement was calculated as the difference between the pre- and post-test achievement scores and denoted as *Achievement Growth*.

*Performance* measured participants' ability to write grant proposals. Grant writing performance scores were created from a review of the submitted proposals by a panel of two experts and were denoted as Performance. The scores were based on a 100 point scale for group comparison purposes.

*Program completion rates* were evaluated as dichotomous variables, based on whether or not the participants “Completed” the program, and denoted as Program Completion Rate.

*Course evaluation scores* (self-reported reaction to learning) were recorded as continuous variables. The sum of all ratings from Likert scale items was used to determine the total mean course evaluation ratings by module and denoted as Total Response.

#### *Characteristics of Study Samples*

The frequency counts and percentages of demographic variables, as well as a chi-square test for independence between demographic variables and learning modules used in this study were compiled and presented below.

Among a total of 33 participants, there were 16 subjects who received an andragogical learning module (51.6 %), among which there were 5 males (16.1 %) and 11 females (35.5 %); there were 17 subjects who had received a pedagogical learning module (48.4 %), among which there were 2 males (6.5 %) and 15 females (41.9 %). A chi-square test showed that the proportion of males and females did not differ significantly as a function of learning group, with  $\chi^2(1, 33) = 1.87, p = .17$ .

Among 16 subjects who participated in an andragogical learning module, the age of one subject (3.0 %) fell between 23 and 29 years old; 5 subjects (15.2 %) fell within 30-39; 3 subjects (9.1 %) fell within 40-49; 4 subjects (12.1 %) fell within 50-59; two subjects (6.1 %) fell within 60-69; and one subject (3.0 %) was 70 or over 70 years old. Among 17 subjects who participated in a pedagogical learning module, the age of four subjects (12.1 %) fell between 23 and 29 years old; three subjects (9.1 %) fell within 40-

49; four subjects (12.1 %) fell within 50-59; and six subjects (18.2 %) fell within the age group of 60-69. A chi-square test showed that the proportion of participants from specified age ranges did not differ significantly as a function of learning group, with  $\chi^2(1, 33) = 9.78, p = .08$ .

Among 16 subjects who participated in an andragogical learning module, one subject (3.0 %) had a high school diploma; eight subjects (24.2 %) had a Bachelor's degree; and seven subjects (21.2 %) had Master's Degrees. Among 17 subjects who participated in a pedagogical learning module, two subjects (6.1 %) had high school diplomas; seven subjects (21.2 %) had Bachelor's degrees; seven subjects (21.2 %) had Master's Degrees; and one subject (3.0 %) had a Doctoral degree. A chi-square test showed that the proportion of participants according to educational levels did not differ significantly as a function of learning group, with  $\chi^2(1, 33) = 1.37, p = .71$ .

Among the 16 subjects who participated in an andragogical learning module, three subjects (9.1 %) had not written any grant proposals in the last five years; two subjects (6.1 %) wrote one grant proposal; one subject (3.0 %) wrote two grant proposals; three subjects (9.1 %) had written four grant proposals; and seven subjects (21.2 %) had written five or more grant proposals in the last five years. Among 17 subjects who participated in a pedagogical learning module, five subjects (15.2 %) had not written any grant proposals; two subjects (6.1 %) wrote one grant proposal; one subject (3.0 %) wrote two grant proposals; two subjects (6.1 %) had written three grant proposals; two subjects (6.1 %) had written four grant proposals; and five subjects (15.2 %) had written five or more grant proposals in the last five years. A chi-square test showed that the proportion

of participants who had written certain numbers of grant proposals over the last five years did not differ significantly as a function of learning group, with  $\chi^2(1, 33) = 3.01, p = .70$ .

Among 16 subjects who participated in an andragogical learning module, in the last five years, five subjects (15.2 %) had not written any funded grant proposals; two subjects (6.1 %) had written one funded grant proposal; one subject (3.0 %) had written three funded grant proposals; two subjects (6.1 %) had written four funded grant proposals; and six subjects (18.2 %) had written five or more funded grant proposals.

Among 17 subjects who participated in a pedagogical learning module, in the last five years, eight subjects (24.2 %) had not written any funded grant proposals; two subjects (6.1 %) had written one funded grant proposal; one subject (3.0 %) had written four funded grant proposals; and six subjects (18.2 %) had written five or more funded grant proposals. A chi-square test showed that the proportion of participants who had written different numbers of funded grant proposals over the last five years did not differ significantly as a function of learning group, with  $\chi^2(1, 33) = 2.00, p = .71$ .

The mean and standard deviation of Likert scale items for reaction to learning (course evaluation ratings) among participants and completers in two learning modules are presented in Tables 1 and 2, respectively.

Table 1

*Course Evaluation for Andragogical and Pedagogical Online Learning Modules among Program Participants*

Item	Section	N	Mean	SD
Instructor prepares well for each class	Andragogical	16	1.25	.447
	Pedagogical	16	1.69	1.014
Instructor effectively communicates subject matter	Andragogical	16	1.38	.500
	Pedagogical	16	1.63	.885
Instructor stimulates interest in subject	Andragogical	16	1.44	.512
	Pedagogical	16	1.31	.602
Instructor seems enthusiastic about subject	Andragogical	16	1.31	.704
	Pedagogical	16	1.25	.447
Instructor welcomes student questions	Andragogical	16	1.00	.000
	Pedagogical	16	1.25	.577
Instructor stimulates thought/expression	Andragogical	16	1.50	.516
	Pedagogical	16	1.69	.602
Instructor is helpful outside of class, when requested	Andragogical	16	1.13	.342
	Pedagogical	16	1.38	.619
Instructor cares about students' learning	Andragogical	16	1.25	.447
	Pedagogical	16	1.50	.632
Instructor welcomes different points of view	Andragogical	16	1.56	.814
	Pedagogical	16	2.25	.856
Instructor is sympathetic/courteous	Andragogical	16	1.25	.577
	Pedagogical	16	1.31	.479
Instructor demonstrates high standards	Andragogical	16	1.81	.750
	Pedagogical	16	2.06	.854
Instructor is free from annoying mannerism	Andragogical	16	1.75	.775
	Pedagogical	16	2.06	.998
Instructor ranks among/best teacher ever	Andragogical	16	2.56	.512
	Pedagogical	16	2.56	.727
I would sign up for another course from instructor	Andragogical	16	1.56	.629
	Pedagogical	16	1.69	.946

Table 1 (continued).

Item	Section	N	Mean	SD
Course seemed well planned	Andragogical	16	1.38	.500
	Pedagogical	16	1.63	.885
Course requirements are reasonable	Andragogical	16	1.56	.512
	Pedagogical	16	1.44	.512
Assignments contribute to course objectives	Andragogical	16	1.44	.512
	Pedagogical	16	1.19	.403
Textbook contributes to course	Andragogical	16	1.38	.619
	Pedagogical	16	1.31	.479
Types of measurement are reasonable	Andragogical	16	1.56	.629
	Pedagogical	16	2.13	.885
Instructor used a variety of teaching methods	Andragogical	16	1.88	.719
	Pedagogical	16	2.19	.911
I learned much in this course	Andragogical	16	1.75	.577
	Pedagogical	16	1.63	.619
I would recommend this course and its instructor	Andragogical	16	1.50	.516
	Pedagogical	16	1.44	.512

Range of Item Responses: 1= strongly agree; 5 = strongly disagree

Table 2

*Course Evaluation for Andragogical and Pedagogical Online Learning Modules among Program Completers*

Item	Section	N	Mean	SD
Instructor prepares well for each class	Andragogical	14	1.29	.469
	Pedagogical	14	1.50	.855
Instructor effectively communicates subject matter	Andragogical	14	1.43	.514
	Pedagogical	14	1.43	.646
Instructor stimulates interest in subject	Andragogical	14	1.50	.519
	Pedagogical	14	1.14	.363
Instructor seems enthusiastic about subject	Andragogical	14	1.36	.745
	Pedagogical	14	1.21	.426
Instructor welcomes student questions	Andragogical	14	1.00	.000
	Pedagogical	14	1.14	.363
Instructor stimulates thought/expression	Andragogical	14	1.50	.519
	Pedagogical	14	1.64	.633
Instructor is helpful outside of class, when requested	Andragogical	14	1.14	.363
	Pedagogical	14	1.29	.611
Instructor cares about students learning	Andragogical	14	1.21	.426
	Pedagogical	14	1.43	.646
Instructor welcomes different points of view	Andragogical	14	1.57	.852
	Pedagogical	14	2.14	.864
Instructor is sympathetic/courteous	Andragogical	14	1.29	.611
	Pedagogical	14	1.21	.426
Instructor demonstrates high standards	Andragogical	14	1.86	.770
	Pedagogical	14	2.00	.877
Instructor is free from annoying mannerism	Andragogical	14	1.71	.726
	Pedagogical	14	1.93	.997
Instructor ranks among/best teacher ever	Andragogical	14	2.50	.519
	Pedagogical	14	2.50	.760



Table 2 (continued).

Item	Section	N	Mean	SD
I would sign up for another course by instructor	Andragogical	14	1.57	.646
	Pedagogical	14	1.57	.938
Course seemed well planned	Andragogical	14	1.36	.497
	Pedagogical	14	1.50	.855
Course requirements are reasonable	Andragogical	14	1.57	.514
	Pedagogical	14	1.36	.497
Assignments contribute to course objectives	Andragogical	14	1.43	.514
	Pedagogical	14	1.14	.363
Textbook contributes to course	Andragogical	14	1.36	.633
	Pedagogical	14	1.36	.497
Types of measurement are reasonable	Andragogical	14	1.57	.646
	Pedagogical	14	2.00	.784
Instructor used a variety of teaching methods	Andragogical	14	1.93	.730
	Pedagogical	14	2.07	.829
I learned much in this course	Andragogical	14	1.79	.579
	Pedagogical	14	1.50	.519
I would recommend this course and its instructor	Andragogical	14	1.50	.519
	Pedagogical	14	1.36	.497

Range of Item Responses: 1= strongly agree; 5 = strongly disagree

The mean, standard deviation and skewness value of continuous variables used in this study are presented in Tables 3 and 4 for both participants and completers. In addition, education level, experience writing grants and experience writing funded grants across the last five years are ordinal variables which were also considered as continuous variables. As can be seen from Tables 3 and 4 below, all study variables are normally distributed. All skew values fell within the acceptable range of -1 to +1. Therefore, parametric tests including the ANOVA test and Pearson correlation analysis were conducted for testing hypotheses pertaining to those study variables.

Table 3

*Descriptive Statistics for Dependent Variables and Continuous Demographic Variables among Participants in the Study*

	N	Minimum	Maximum	Mean	Skewness
Total response scale	32	22	56	34.81	.591
Performance Assessment	30	25	100	73.67	-.527
Achievement Growth	30	-34	81	21.80	.197
Experience Writing Grants	33	1	6	3.85	-.299
Experience Writing Funded Grants	33	1	6	3.39	.096

Table 4

*Descriptive Statistics for Dependent Variables and Continuous Demographic Variables among Program Completers in the Study*

	N	Minimum	Maximum	Mean	Skewness
Total response scale	28	22	53	33.86	.561
performance Assessment	28	25	100	72.50	-.449
Achievement Growth	28	-34	81	22.50	.150
Experience Writing Grants	28	1	6	4.04	-.426
Experience Writing Funded Grants	28	1	6	3.54	-.011

A Pearson correlation analysis was conducted to determine if there was any association between continuous variables. As can be seen from Table 5, for *participants* there was a significant positive correlation between experience writing grants and experience writing funded grants ( $r = .870, p = .01$ ), which suggests that participants who had written larger numbers of grants over the last five years also had more successes in getting their proposals funded. Also, a negative (but weak) correlation between education and experience writing grants ( $r = -.358, p = .05$ ) was noted.

As can be gleaned from Table 6, for *completers* there also was a positive correlation between experience writing grants and experience writing funded grants ( $r = .849, p = .01$ ), which suggests that program completers who had written larger numbers of grants over the last five years also had more successes in getting their proposals funded over the same time frame. Similarly, there was a positive correlation among completers between performance assessment scores and experience writing grants ( $r = .402, p = .05$ ), and between performance assessment scores and experience writing funded grants ( $r = .383, p = .05$ ). This suggests that completers with more experience writing grants or getting their proposals funded also tended to have higher performance scores.

Table 5

*Correlation Analysis between Variables of Interest among Participants in the Study*

	1	2	3	4	5
1 Total response scale	1.000				
2 Performance Assessment	.097				
3 Achievement Growth	.071	-.199			
4 Education Level	.309	.062	-.094		
5 Experience Writing Grants	.048	.321	-.194	-.358 *	
6 Experience Writing Funded Grants	.149	.324	-.199	-.309	.870 **

\*p = .05; \*\*p = .01

Table 6

*Correlation Analysis between Variables of Interest among Completers in the Study*

	1	2	3	4	5
1. Total response scale	1.000				
2. Performance Assessment	.051				
3. Achievement Growth	.081	-.199			
4. Education	.258	.006	-.071		
5. Experience Writing Grants	.105	.402 *	-.266	-.290	
6. Experience Writing Funded Grants	.178	.383 *	-.255	-.264	.849 **

\*p = .05; \*\*p = .01

### *Evaluation of Test Reliability*

The reliability of Likert scale measures on course evaluations was analyzed and the results are presented in Table 7. As can be seen, the reliability of the Likert scale course evaluation scores had a Cronbach's alpha value of .92. The high Cronbach's alpha confirmed the reliability of the course evaluation instrument as employed in this study.

Table 7

#### *Internal Coefficient Alphas for Likert Scale Course Evaluations*

Cronbach's Alpha	Item N
.92	22

### Research Question One

$H_1$  was proposed to compare the two groups' course evaluations. A one-way ANOVA revealed that the average response scales (1 = strongly agree; 5 = strongly disagree) for course evaluations among participants in the andragogical cohort (M=33.19, SD = 7.29) were lower and clearly represented *better* course evaluation scores than among the pedagogical cohort (M=36.56, SD = 10.28), however the difference as a function of learning group failed to reach the significance level .05, with  $F(30, 1) = 1.15, p = .293$ .

A one-way ANOVA also revealed that the average response scales (1 = strongly agree; 5 = strongly disagree) for course evaluations among *completers* in the andragogical cohort (M=33.43, SD=7.22) were lower and therefore represented slightly better course evaluation scores than among the pedagogical cohort (M=34.43, SD=8.92), however the difference as a function of learning group failed to reach the

significance level .05 with  $F(26, 1) = .10$ ,  $p = .75$ .

#### Research Question Two

$H_2$  was proposed to compare the two groups' program completion rates.

Among 16 subjects participating in the andragogical learning module, 14 (87.5%) completed the program and 2 (12.5%) did not. Among 17 subjects participating in the pedagogical learning program, 14 (82.4%) completed the program and 3 (17.6%) did not. A chi-square test revealed that program completion rates did not differ significantly as a function of learning group, with  $\chi^2(1) = .17$ ,  $p = .68$ .

#### Research Question Three

$H_3$  was proposed to compare the two groups' achievement growth (level of evaluative skill) over time. A one-way ANOVA revealed that the average achievement growth of 20.93 (SD = 29.89) among participants in the andragogical cohort was slightly lower than among the pedagogical cohort (M = 22.67, SD = 27.42), however the difference as a function of learning group failed to reach the significance level .05, with  $F(28, 1) = .03$ ,  $p = .87$ .

A one-way ANOVA also revealed that the average achievement growth of 22.71 (SD = 30.17) among completers in the andragogical cohort was slightly higher than among the pedagogical cohort (M = 22.28, SD = 28.41), however the difference as a function of learning group failed to reach the significance level .05, with  $F(26, 1) = .001$ ,  $p = .97$ .

#### Research Question Four

$H_4$  was proposed to compare the two groups' grant writing performance scores. A one-way ANOVA revealed that the average grant writing performance score of 73.0 (SD = 25.83) among participants in the andragogical cohort was slightly lower than among the pedagogical cohort (M=74.33, SD = 20.86), however the difference as a function of learning group did not reach the significance level .05 with  $F(28, 1) = .02, p = .88$ .

A one-way ANOVA also revealed that the average performance score of 72.50 (SD = 26.72) among completers in the andragogical cohort was identical to the mean score among the pedagogical cohort (M = 72.50, SD = 20.35). Therefore, there was no significant difference in average performance scores as a function of learning group, with  $F(26, 1) = 0.00, p = 1.00$ .

#### Qualitative Results

Within the present study, two open-ended questions were included as part of the course evaluation instrument that measured reaction to learning for all participants in the andragogical and pedagogical online learning modules, as follows:

- “As an adult learner, do you enjoy learning from the experiences of fellow adults when participating in non-formal, non-credit learning opportunities? Please explain your answer briefly and provide rationale. (There are no right or wrong answers).”
  - “Did participation in this course encourage you to consider pursuing additional non-formal-non-credit continuing education opportunities in the future? Please explain your answer briefly and provide rationale. (There are no right or wrong answers).”

For the first question, a content analysis was performed to consider similar threads of responses by participants within each group with respect to their: (1) enjoyment of learning from the experiences of fellow adults; and (2) perceived need for more interactive or experiential learning activities as espoused within the assumptions of andragogy. In summary, 15 of 16 participants (93.75 %) within the andragogical group who responded to the first question stated affirmatively their enjoyment of learning from the experiences of fellow adults when participating in non-formal non-credit learning opportunities, and the one respondent (6.25 %) who did not explicitly state their enjoyment of learning from experience did provide suggestions for even more interactivity within the andragogical module, thereby illuminating their preference toward even more andragogical learning strategies.

Comments from 15 of 16 participants in the andragogical cohort who expressed their enjoyment of learning from the experiences of others appear below:

- “Yes, I enjoy learning from others experiences. It prevents a person from making the same mistakes they have made on their projects.”
  - “Absolutely...I plan on becoming a Grant Writer.”
  - “I do enjoy learning from the experiences of fellow adults when participating in non-formal, non-credit learning opportunities. When I read questions that other students have or read what they have learned, it seems to mean more because I relate better to the experience of a fellow learner than I do always learning from the instructor.”
  - “I enjoy learning from the experiences of fellow students participating in non-formal, non-threatening, and non-credit learning opportunities. I enjoy it because it cuts down on the time it takes to traverse a learning curve. Simply put, I advocate strongly for not reinventing the wheel when someone has already accomplished it. I believe in sharing knowledge, and I get a lift out of seeing people learn. I have been a learner and teacher most of my adult life and I ENJOY it!”



- “Yes, I do. I really appreciated reading about other students experiences, getting tips, suggestions, etc. The only issue I had with this course was that it was online. I'm extroverted in that I enjoy the out loud discussion.”
- “I do enjoy learning from the experiences of others, it is easier to "discuss" the topics, opposed to a lecture or webinar.”
- “I always learn new things listening and talking with others about their experiences.”
- “Yes, I enjoy learning from others that are working towards the same goals. Having fellow adult learners with a different perspective and others who have different experiences can help me look at the subject with a broader focus than just what I bring to the table. Even those who have no experience writing grants have had some good comments and questions that force the rest of us to think about the process.”
- “I learn the most from shared best practices from other individuals in the same area of interest with an ample amount of time.”
- “It is always beneficial to hear the opinions and comments of fellow students and the observations of the instructor.”
- “Yes, I enjoy learning from my fellow adults. I learn best from others' successes and failures.”
- “Yes, I benefit greatly from others comments. I am also a literacy provider and use the list serve associated with our parent organization. Those experiences are invaluable.”
- “The topic and my lack of knowledge thereof was my inspiration for taking this course. I would take advantage of other, similar opportunities if the topic was of interest.”
- “Yes I did. I also enjoyed learning from my classmates as well.”
- “I just wish I had gotten started sooner, it was a good group with a diverse background and I thought the discussion sections were helpful, despite the impersonal format.”

In contrast, one participant in the andragogical cohort who responded to the first question did not explicitly state their enjoyment of learning from the experience of others

but did provide suggestions for even more interactivity or experiential learning within the andragogical module of this study. Those comments, which favored andragogical rather than pedagogical learning strategies, appear below:

- “I enjoyed the challenge of fitting this into my normal work. I would like to do more on a similar subject. I believe the course structure could be improved by: starting with a straw dog application and students having reviews/questions interactively, progressing through the entire proposal, step by step.”

Eleven of 15 participants (73.33 %) within the pedagogical group who responded to the first question stated affirmatively their enjoyment of learning from the experiences of fellow adults when participating in non-formal non-credit learning opportunities, three (20 %) did not respond directly to the question posed but did express their enjoyment of learning by doing, and one respondent (6.67 %) was undecided yet fondly remembered such learning opportunities from college.

Comments from 11 of 15 participants in the pedagogical cohort who responded to the first question and expressed their enjoyment of learning from the experiences of others appear below:

- “I always enjoy learning, formal or non-formal. This is an opportunity that I am glad I have had because I learned a good bit and have a resource that I can use endlessly in the future. Seeing grant proposals that were funded give me an opportunity to learn from their example but the comments of the grant committee was the most interesting section. This gave me an opportunity to view the grant from a different perspective that is critical to the success of my proposals being funded.”
  - “Yes, simply because you can never gain enough knowledge. Things change, therefore these courses can assist you in keeping up with new additions and/or any changes to any course.”
  - “Absolutely. I enjoyed reading posts by others, but would have enjoyed regular discussion session (given times, with and without the instructor present) for interaction with the whole group.”

- “Yes--I am always "scouting" for those types of learning opportunities.”
- “I prefer interaction with other students as well as the instructor. This was my first internet course I did not interact very much with the other students, but when I participate in another course like this one, I will be better prepared to take advantage of interaction with other students.”
- “Yes- their experiences often help me avoid pitfalls.”
- “Absolutely, I think the more experience-related narratives I get, the better.”
- “Yes. I believe you can learn a great deal from individuals that have actually experienced what you are trying to learn. They generally can share both the positive and negative aspects.”
- “Absolutely! When the pressure of grading is removed, the atmosphere is more relaxed and I don't feel as stressed. I also find myself open to other options and am more willing to approach a subject I have absolutely no experience in. I do miss the eye to eye contact a regular classroom provides and the interaction with the teacher and a variety of students.”
- “Yes, I learn best outside of a traditional learning environment from the experiences of others. These experiences provide real life situations, problems, and solutions. Sometimes, others' experiences provide solutions to similar situations as my own.”
- “Yes, it is good to learn from the experiences of others because it can save you a lot of time and headaches from having to go through the full experience blindly. It gives you insight on some things you may not have thought about and it warns you of some things to avoid.”

In contrast, three of 15 participants from the pedagogical group did not respond directly to the question posed but still expressed their enjoyment of learning by doing, as gleaned from their comments as follows:

- “I learn by doing and this course allowed me to participate in a manner that also allowed me to learn and grow as a grant writer.”
- “My experience has been in grants and I have been taught to "write to the grant." I liked the step by step instruction given in the learning materials. I do appreciate the opportunity to learn more about what is expected in

foundation proposals. I really liked reviewing the sample proposal, it certainly gave me insight to the areas in my submitted proposal that needed help.”

- “I enjoyed the non-formal aspect of the course but I do not know if I would be willing to participate in another course that did not offer a credit.”

One of 15 respondents from the pedagogical group was undecided as to whether or not they enjoy learning from the experiences of others as such opportunities were not part of the current program, but did recall such opportunities in the past by stating:

- “Not sure. Never interacted with others. However, I do recall the opportunities from my college days from interacting with fellow students and having them to bounce things off/share ideas.”

For the second open-ended question, a content analysis was also performed to consider similar threads of responses by participants within each group with respect to whether or not participation in an online learning module encouraged them to pursue future non-formal, non-credit continuing education opportunities. In summary, 13 of 14 participants (92.86 %) in the andragogical group who responded to the second question stated affirmatively that by participating in the course they were more likely to also pursue future educational opportunities of a similar nature, while one (7.14 %) indicated having taken a number of continuing education classes previously.

Comments from 13 of 14 participants in the andragogical cohort who responded to the second question and indicated that they are now more likely to pursue additional non-formal educational opportunities because of their participation in the online course appear below:

- “Yes. I enjoy learning from others.”

- “Yes, participation in this course did encourage me to pursue additional non formal, non credit continuing education opportunities in the future. This is why I hope to have many opportunities to be guided by Joe in the future for continuing Ed opportunities. I like that the course was free, that the instructor was so helpful, and that he seemed to really care that I had a good learning experience. He was very personable, and had a great attitude about helping me reach my learning goals.”
- “I enjoy learning from the experiences of fellow students participating in non-formal, non-threatening, and non-credit learning opportunities. I enjoy it because it cuts down on the time it takes to traverse a learning curve. Simply put, I advocate strongly for not reinventing the wheel when someone has already accomplished it. I believe in sharing knowledge, and I get a lift out of seeing people learn. I have been a learner and teacher most of my adult life and I ENJOY it!”
- “Yes! After completing the course, I feel that I could actually take a few courses a year. I think it will improve my skills as an Executive Director and fund developer.”
- “Yes, I would be interested. Time restraints are the biggest issue.”
- “Yes, as I stated when I started the course, I have grant writing experience by virtue of my job and have learned what I know through on the job training but not much formal training. I have learned a great deal from working with my Executive Director. A good bit of what I have learned has been confirmed as good practice. What I really enjoyed was reading over proposals and having the comments from the funders. When we submit proposals we get a "yes" or "no" answer but often no explanation of any real value to improving what we submit. Being able to read the funders comments has given me a greater understanding of what appeals to them and what doesn't. In the process of the course I ran across some online resources and others in the class have also shared resources they have found. I have a list of these resources and intend to read through them to see if I can increase my ability to write a better, more concise proposal. This will take some practice but I will enjoy the challenge. Additionally, the Nonprofit Resource Center of Alabama has good resources and often has classes scheduled that could be of help. They had a quite a few this month but because of my schedule I was unable to take advantage of them but will look for some classes to repeat.”

- “Absolutely, I will definitely pursue other fundraising classes/courses on the Foundation Center's Website.”
- “I am always interested in pursuing additional learning. The online format makes the education process very convenient. Would be interested in future opportunities.”
- “I prefer in-person classes because of the great opportunity for interaction with the teacher and my classmates. I am a continuing education junkie, so I will definitely participate in future non-formal, non-credit continuing education opportunities.”
- “Yes, this was a first time for me to do a course completely online. Thank goodness for Mr. Bradley's patience and his willingness to e-mail me and phone me to keep me going. An impediment on my computer was making my first experiences very challenging. I probably would not have persevered had Joe not let me know that he tried my ID and password at home, and they worked. I then knew the problem of access was at this end and forged ahead. Once I got the hang of it, it was a very pleasant experience. I learned a lot about navigating around the system. I have lots of time when I can have access to the office computers because I live where I work and can stay at it in the quiet of the night as long as I please.”
- “The topic and my lack of knowledge thereof was my inspiration for taking this course. I would take advantage of other, similar opportunities if the topic was of interest.”
- “Yes. I think this was very beneficial.”
- “Yes, I am a big fan of continuing education already but taking a good online course encourages me anyway!”

In contrast, one of 14 participants in the andragogical cohort who responded to the second question did not explicitly state their likelihood of taking similar non-formal continuing education classes in the future. However she did indicate a history of taking such courses in the past. Those comments appear below:

- “I've taken continuing education classes before so this one is just another among

many.”

Fourteen of 16 participants (87.5 %) in the pedagogical group who responded to the second question stated affirmatively that by participating in the online course they were more likely to pursue future educational opportunities of a similar nature, while one (6.25 %) respondent said that she would not because of time constraints and one (6.25 %) other participant did not directly answer the question posed but did affirm her satisfaction with the learning experience because of the convenience of time and place that online learning affords.

Responses from 14 of the 16 participants in the pedagogical cohort who responded to the second question and expressed that they are now more likely to pursue future non-formal educational opportunities because of their participation in the online foundation grant writing course appear below:

- “I enjoyed this online experience because it had good information made available when I had the time to do the work. Also the non-credit non-formal puts less pressure to perform and more incentive to challenge myself.”
  - “Yes, the more I learn, the more I realize I need to learn. Being better educated will always help me in anything I do in the future.”
  - “Yes, simply because you can never gain enough knowledge. Things change, therefore these courses can assist you in keeping up with new additions and/or any changes to any course.”
  - “Certainly. A few months ago I completed an online computer course on PowerPoint. I thoroughly enjoyed it. I would do this again. Thanks for the extension.”
  - “Yes, if timing is not in the middle of my most busy part of the year as it was this time. I apologize for late sign-in and inability to put my best efforts into the project. Joe, this evaluation seems more crafted for a regular course evaluation with classroom participation, so many of the answers given as "neither yes or no" are based on there being no basis for answering. One other suggestion. For those who have never taken such a

course, be very specific about how to join chat sessions and other details/instructions that some of the participants don't know ahead of time, especially for an older, adult audience. Thanks for this opportunity and I look forward to your feedback.”

- “Yes, after completing this course, I would like to continue my education in the area of grant writing.”
- “Yes it does encourage me to consider other courses in the future. This first time experience proved to be a very valuable learning experience. I do a lot of continuing education courses but it has always been in a classroom setting. The teacher was excellent and available to help me through the mechanics of the program.”
- “Yes- This type of learning environment is helpful in my profession.”
- “Yes, the more classes I can be involved in, the more strength I will have in writing complete, understandable proposals that will strengthen the foundation. This has been a great class and learning experience for me.”
- “Yes, I think the resources I was able to benefit from and the ability to work with a professional in the field helped immensely and I would definitely work this way again in the future.”
- “Yes, I think this is a good opportunity. It was not clear to me at first how to utilize the website and there were times that I tried to access a module that should have been posted but was not available. The time constraint does present an issue when you are working and it is sometimes difficult to complete within the timeframe stipulated.”
- “Oddly enough, I just last week looked at an online course offered by an area university. As an Executive Director in a Scholarship Program, I interact with women who are enrolling in college after many years away from high school. This experience has helped me be more empathetic to their time challenges and needs. It also is a safe and low-keyed approach to learning new skills. I'm thinking of taking a writing class; after spending two weeks in a hospital setting with a sick family member, I feel like I have 30 good chapters toward my first book!”
- “Yes, especially online opportunities. This course was convenient. I could work on the material at home and/or at work.”



- “Yes, I always look for new training opportunities. You can never learn too much.”

In contrast, one of 16 participants in the pedagogical cohort who responded to question two does not plan on pursuing non-formal courses in the future, and stated:

- “Again, I do not think that I would participate in a non-credit course. With a busy schedule, it is hard to commit to any form of non-credited education.”

The sole participant from the pedagogical cohort who did not respond directly to the second question yet did express their enjoyment with the learning experience wrote:

- “I enjoyed this online experience because it had good information made available when I had the time to do the work. Also the non-credit non-formal puts less pressure to perform and more incentive to challenge myself.”

#### Summary of Findings

Based on the results above, the following conclusions could be reached: (1) there was no statistically significant difference in self-reported reaction to learning (course evaluation ratings) between staff members of nonprofit social service agencies who participated in or completed an andragogically-facilitated or pedagogically-conducted online learning module on foundation grant writing; (2) there was no statistically significant difference in program completion rates between staff members of nonprofit social service agencies who participated in or completed an andragogically-facilitated or pedagogically-conducted online learning module on foundation grant writing; (3) there was no statistically significant difference in achievement growth (level of evaluative skill) between staff members of nonprofit social service agencies who participated in or completed an andragogically-facilitated or pedagogically-conducted online learning module on foundation grant writing; and (4) there was no statistically significant difference in grant writing performance scores between staff members of nonprofit social

service agencies who participated in or completed an andragogically-facilitated or pedagogically-conducted online learning module on foundation grant writing.

The following associations between continuous variables among participants in the study were found: (1) there was a significant positive correlation between experience writing grants and experience writing funded grants; and (2) there was a significant (but weak) negative correlation between education and experience writing grants over the last five years. In addition, the following associations between continuous variables among completers in the study were found: (1) there was a significant positive correlation between experience writing grants over the last five years and experience writing funded grants over the last five years; and (2) there was a significant positive correlation between grant writing performance scores and experience writing funded grants over the last five years.

The qualitative results of responses among participants to open-ended questions within the course evaluation instrument include the following: (1) 15 of 16 participants (93.75 %) within the *andragogical module* who responded to the first question stated affirmatively their enjoyment of learning from the experiences of fellow adults when participating in non-formal non-credit learning opportunities, and the one respondent (6.25 %) who did not explicitly state her enjoyment of learning from experience did provide suggestions for even more interactivity within the andragogical module, thereby suggesting her favor toward more andragogical learning strategies. (2) In comparison, 11 of 15 participants (73.33 %) in the *pedagogical module* who responded to the first question stated affirmatively their enjoyment of learning from the experiences of fellow adults through non-formal non-credit learning opportunities, while three (20.00 %)

indicated such opportunities were lacking yet desired within the online course structure.

(3) Thirteen of 14 participants (92.86 %) within the *andragogical module* who responded to the second question stated affirmatively that by participating in the course they were more likely to also pursue future educational opportunities of a similar nature, and one (7.14 %) indicated having taken a number of continuing education classes previously. (4) In comparison, 14 of 16 participants (87.50 %) in the *pedagogical module* who responded to the second question stated affirmatively that by participating in the online course they were more likely to pursue future educational opportunities of a similar nature, one (6.25 %) responded that they would not because of time constraints and one other participant (6.25 %) did not directly answer the question posed but did affirm their satisfaction with the learning experience because of the convenience of time and place that online learning affords.

## CHAPTER FIVE

### DISCUSSION

#### Research Hypotheses

This chapter attempts to examine the research aims through the analysis of raw data and qualitative comments imparted in chapter 4. First, four research hypotheses are addressed in sequence. Next, the implications of this analysis are presented, followed by the limitations of the study. Recommendations for future research are then offered. The chapter concludes with a summary.

The present study compared the efficacy of andragogical teaching methods with pedagogical teaching methods in an online non-formal setting. The study was designed to assess the reactions to learning (course evaluation ratings), completion rates, achievement growth (level of evaluative skill), and grant writing performance scores of the participants as outcomes of andragogical and pedagogical online learning modules on foundation grant writing. It was designed to comply closely with Rachal's (2002) seven criteria for andragogy researchers.

A quantitative experimental design supported by open-ended questions was utilized for this study. Participation was restricted wholly to adult voluntary learners. A sample of 52 volunteers was identified and subjects were randomly assigned to the andragogical and pedagogical groups. This ultimately resulted in 33 participants. Each four-week module began during the last week of March, 2009 and required an estimated 16-hour commitment of time. The researcher served as facilitator for both modules, thereby avoiding personality variations as a delimitation of the study. A Likert scale course evaluation instrument similar to the one used by Strawbridge (1994) was used to

measure the learners' perception (reaction to learning) of the instructor and the course requirements and procedures. Learners' achievement growth was measured to evaluate the effect of each learning module on the evaluative skills of participants. Their performance was measured by grant-writing performance scores.

$H_1$  was proposed to compare the two groups' course evaluations. A one-way ANOVA revealed that the total average response scales for course evaluations among participants in the andragogical cohort were lower (1 = strongly agree; 5 = strongly disagree) and clearly represented better course evaluation scores than among the pedagogical cohort. However, the difference was not significant. A one-way ANOVA also revealed that the total average response scales among completers in the andragogical cohort were slightly lower and therefore represented better course evaluation scores than among the pedagogical cohort. However, the difference was not significant.

As a means of qualitative narrative inquiry, two open-ended questions were also included within the course evaluation instrument to measure participants' reaction to learning in both modules. For the first question, a content analysis was performed to consider similar responses by participants in the andragogical module.

Qualitatively, 15 of 16 participants in the andragogical module who responded to the first question stated affirmatively their enjoyment of learning from the experiences of fellow adults when participating in non-formal non-credit learning opportunities. In comparison, only 11 of 15 participants in the pedagogical module stated affirmatively their enjoyment of learning from the experiences of fellow adults through non-formal non-credit learning opportunities, and four others indicated that such opportunities were lacking yet desired within the online course structure.

One participant from the andragogical cohort who failed to complete all program activities, and was therefore not a completer but still valued the program and expressed that she would likely pursue additional non-formal learning opportunities in the future by stating:

Yes, this was a first time for me to do a course completely online. Thank goodness for Mr. Bradley's patience and his willingness to e-mail me and phone me to keep me going. An impediment on my computer was making my first experiences very challenging. I probably would not have persevered had Joe not let me know that he tried my ID and password at home, and they worked. I then knew the problem of access was at this end and forged ahead. Once I got the hang of it, it was a very pleasant experience. I learned a lot about navigating around the system. I have lots of time when I can have access to the office computers because I live where I work and can stay at it in the quiet of the night as long as I please.

Similarly, regarding the collaborative nature of goal setting and pursuit of future non-formal learning opportunities, another participant in the andragogical cohort who was also considered a completer wrote:

Yes, participation in this course did encourage me to pursue additional non-formal, non-credit continuing education opportunities in the future. This is why I hope to have many opportunities to be guided by Joe in the future for continuing education opportunities. I like that the course was free, that the instructor was so helpful, and that he seemed to really care that I had a good learning experience. He was very personable, and had a great attitude about helping me reach my

learning goals.

These qualitative differences, in conjunction with the clearly more favorable aggregated mean course evaluation ratings among participants in the andragogical module as compared to the pedagogical module, indicates the same trend noticed by Wilson (2005). Even though a statistically significant improvement in student performance was not gained from the andragogical model in the current study, a higher level of learner satisfaction with the course and its instructor among participants in the andragogical module is supported. In addition, though not significant, the average total response scales (1 = strongly agree; 5 = strongly disagree) for course evaluations among participants in the andragogical cohort ( $M = 33.19$ ) were much lower and clearly represented better course evaluation ratings than among the pedagogical cohort ( $M = 36.56$ ).

It seems plausible, therefore, to assume that better overall mean course evaluation scores on Likert scales as submitted by participants within the andragogical as compared to the pedagogical module at least partly resulted from the various experiential or knowledge sharing and collaborative planning activities that were afforded to the andragogical cohort. The validity or meaning of these better group scores, therefore, may be enhanced through triangulation of results even though the related hypothesis was not significant. It is also possible that a larger sample size for the present study may have resulted in statistically significant differences between mean course evaluation scores among participants in the andragogical and pedagogical modules.

$H_2$  was proposed to compare the two groups' program completion rates. A chi-square test approach was employed to examine if there was a strong relationship between

course completion rates as a function of learning group. The findings indicated that there was no statistically significant difference in program completion rates between participants in the two groups. Both groups, however, showed evidence of high completion rates.

$H_3$  was proposed to compare the two groups' achievement growth (level of evaluative skill) over time. Results using a one-way ANOVA approach revealed that the average achievement growth among participants in the andragogical cohort was lower than among the pedagogical cohort, however, the difference was not significant. A one-way ANOVA also revealed that the average achievement growth among completers in the andragogical cohort was slightly higher than among the pedagogical cohort, however, the difference was not significant. Both groups did enjoy high mean scores for achievement growth which illustrates the positive impact of the modules on the evaluative skills of nearly all participants and completers.

$H_4$  was proposed to compare the two groups' grant writing performance scores. This hypothesis evaluated the effect of the two learning modules as measured by the performance of participants. A one-way ANOVA revealed that the average grant writing performance score among participants in the andragogical cohort was slightly lower than among the pedagogical cohort, however, the difference was not significant. A one-way ANOVA also revealed that the average grant writing performance score among completers in the andragogical cohort was identical to the pedagogical cohort. Both groups did enjoy relatively high mean grant writing performance scores, thereby illustrating the positive impact of the modules on the actual performance of participants.



As evidenced from the aforementioned discussions, and supported by the detailed results from Chapter IV, high levels of learner satisfaction, course completion rates, achievement growth and performance were enjoyed by most of the participants and completers in both learning modules. As such, the primary implication is that andragogical learning methods as facilitated in the current study were just as effective as pedagogical or teacher-centered methods in online non-formal foundation grant writing modules with respect to the above variables. In addition, because the convenience of time and place are two primary strengths of distance education, and several participants mentioned such convenience within their qualitative responses, online learning represents a viable alternative to in-person classes or seminars for adult learners seeking non-formal or professional development training opportunities such as the online foundation grant writing modules within the current study.

The findings in this study of a non-credit, non-formal online course agreed with McMasters' (1996) conclusion regarding the effect of andragogy in a traditional college setting. McMasters studied the retention rates of first year students in a traditional university and whether or not a significant difference of retention occurred between the andragogical method of instruction and the traditional pedagogical method of instruction. He found no significant increase in retention rates among learners who were taught using andragogical methods. McMasters (1996) concluded that andragogical methods of instruction "appear to be a viable alternative to traditional pedagogical method(s)" (p. 73), but could not conclude that andragogical methods are necessarily better. Specific increases existed, but upon in depth analysis, "the null hypothesis [could] not be rejected"

(p. 75). However, McMasters' (1996) study did not meet the required "adult status" of Rachal's (2002) since he sampled first year college students.

### Limitations

One possible limitation was that the researcher served as the facilitator or instructor for each module which could result in instructor bias. This would be a concern if the researcher taught the two groups in a similar way. The danger here would be the possibility of the constant of the educator's personal teaching style blurring the border between andragogical and pedagogical learning. Instructional methods and learning activities differed significantly, however, as discussed elsewhere in this study. Every possible step was undertaken to differentiate the andragogical and pedagogical learning experiences.

Although it was anticipated that an ideal sample size of 23 participants per group or 46 total participants would be achieved, the final sample consisted of 33 total participants, which resulted in lower statistical power. As a final limitation, this research suffers from the same issues of generalizability—how well these findings may be generalized and applied to the greater problem—that all research, quantitative or qualitative, suffers from. However, the quantitative study results were further supported by qualitative narrative responses from the participants as previously discussed.

### Discussion of the Context of These Findings within the Existing Literature

The theoretical foundation of this study was based upon andragogy, or student-centered learning. According to Rachal (2002), "the studies of the 1980s and 1990s relative to andragogy's effectiveness in both achievement and satisfaction provide mixed results and often 'no significant differences' emerging from variegated methodologies,

and thus reveal an instable theoretical foundation upon which to prescribe practice” (p. 224). Of course, some writers have been even more critical and less accepting of andragogy, discounting it as a helpful slogan and stating that there should be no difference between educating children and adults (Elias, 1979). These germinal works established the field of andragogy and catalyzed an entire body of research into the strengths and weaknesses of andragogy and pedagogy as well as its relative effectiveness.

In 2002, Rachal established seven criteria to help ensure that studies of andragogy utilize a true andragogical approach in order to make possible the comparison of results across studies. Previously, various studies comparing the efficacy of andragogy and pedagogy using experimental or quasi-experimental techniques have complied with some, but not all of Rachal’s criteria, making comparisons difficult at best.

Although the empirical research on andragogy in non-college settings was not affected by deviances from the adult status required by Rachal (2002) as the research from college settings was, other shortcomings relative to Rachal’s criteria emerged. Each study discussed except for Beder and Carera (1988) and Cross (1988) used paper and pencil tests. Only two studies, Cross (1988) and Ogles (1990) implemented learning contracts. About half of the studies (Cross, 1988; Familoni, 1991; Saxe, 1987; White, 1989) did not use learner input in a significant way. Some of these empirical studies of andragogy in non-college settings suffered from involuntary participation of subjects, including Cartor (1991), Madriz (1987), and White (1989).

Ultimately, it was found that compared to the number of empirical studies of andragogical methods in college settings, the effect of andragogical teaching strategies in non-college settings was understudied, under-explored, and poorly understood, creating a

gap in research that this study attempted to fill, in compliance with Rachal's seven criteria. This gap is even more obvious when considering the lack of studies dealing with non-formal education and/or professional development, especially in an online learning environment. In the case of online learning, this was the first such study that utilized all of Rachal's criteria and preferred measures for comparing the efficacy of andragogical to pedagogical learning strategies. In addition, since attendance or course completion has been linked to lifelong learning, course completion rates were also included within the present study. Such "holding power," Beder and Carrea (1988, p. 75) posited, is essential to adult education settings that cater to voluntary participants.

*Broad Sketch of the Effectiveness of Andragogy*

Twenty-one studies including the present one were correlated and discussed previously, as follows: Anameana, 1985; Beder & Carrea, 1988; Cartor, 1991; Clark, 1991; Cross, 1988; Familoni, 1991; Farrar, 1991; French, 1984; Langston, 1990; Hornor, 2001; Hudson, 2005; Huntley, 1985; Madriz, 1987; McMasters, 1996; Ogles, 1990; Rosenblum & Darkenwald, 1983; Saxe, 1987; Stevens, 1986; Strawbridge, 1994; Wilson, 2005; White, 1989. Out of these studies, five (Hornor; Hudson; Huntley; Madriz; Ogles) found that andragogy was more effective across one or more variables. One study (Clark) found that andragogy was decidedly less effective. Two studies (Wilson; Saxe) produced truly mixed results. Wilson found that andragogy resulted in improved learner satisfaction, but not improved performance, and Saxe found that a moderate level of andragogy-style student participation was more effective than low levels (purist pedagogy) or high levels (purist andragogy). The remaining fourteen studies, including

the findings of this study, concluded that there was no statistically significant difference in the results of andragogical versus pedagogical instructional methods.

From this, we could potentially synthesize the conclusion that while the case cannot yet be made that andragogy is a superior instructive methodology, it is as at least an equal to the traditional pedagogical method, as the majority of contemporary studies have found no statistically significant difference in the results of the two contrasting methods. However, the most important conclusion to be drawn from a comparison of these findings, including the findings of this study, is that more research on the effectiveness of andragogy is needed, across a number of educational settings, but especially in non-formal and professional development educational programs for adults.

### Recommendations

#### *Need For Further Research*

An extensive review of the literature in chapter two did not uncover any previous studies comparing the relative efficacy of andragogy versus pedagogy in online non-formal adult education programs that emphasize personal or professional development. This study, the first of its kind to heed all of Rachal's suggestions as far as the author was able to discover, only begins to fill a large gap in research in this field. The findings call for additional studies of andragogy versus pedagogy in online non-formal, noncredit adult education and professional development programs. As Rachal posited, such settings may be most conducive to implementing a more purist definition of andragogy, while keeping in mind that programs must be designed at levels that best meet the unique needs of participants. Though both Blondy (2007) and Cercone (2008) cautioned against using an overly purist or epistemological definition of andragogy in both practice and research

settings, Rachal's criteria for researchers also recognizes different levels of practice based on situational contexts yet allows for a comparison of results across studies.

*Six Additional Recommendations for Researchers*

- 1) The author recommends that future studies in this field utilize more consistent operational definitions, and comply with Rachal's (2002) seven criteria.
- 2) The author also recommends that future studies use higher level statistical procedures in interpreting findings and synthesizing data into conclusions. In addition to ANOVA, MANOVA and MANCOVA specifically are recommended. Other methods, such as structural equation modeling, should also be considered.
- 3) A larger N might allow for additional types of non-parametric analyses such as bootstrap or jackknife.
- 4) Future research, as did the current study, should utilize performance testing rather than paper and pencil tests. Performance testing is more suited to reflecting the results of androgical learning and may be easier to implement in non-formal non-credit adult education programs than in for-credit classes (Rachal, 2002).
- 5) Future researchers should consider using both quantitative and qualitative techniques to support results via triangulation. For example, future research could include interviews as well as open ended survey questions and utilize the resulting phenomenological analysis to triangulate the quantitative results. Specifically, the thoughts, perceptions and lived experiences of the participants could be used in addition to ANOVA/MANOVA results to see

how the findings from the two analyses complement or refute one another in a larger setting, using triangulation to check if qualitative and quantitative research methods would yield the same or differing findings independently.

- 6) Finally, more research on the effects of andragogy in an online, nonformal adult-education, professional development or continuing education setting is needed, as this study only begins to bridge the gap in literature in this particular field.

#### *Six Recommendations for Practitioners*

- 1) Determine adult learners' experiences, if any, with online learning prior to enrollment. Offer learners a pre-training tutorial program in online learning as well as individualized assistance throughout the term of the training program when necessary.
- 2) Online learning offers the convenience of time and place. Even so, online learning may not be suited for all adult learners. It is, however, a valuable option.
- 3) Offer alternative learning activities, based on individual learner input or contracts, that meet with the varying learning styles or preferences of adult learners.
- 4) When using contracts, provide instructions and work with each learner individually to maximize utility based on their own expressed gaps in knowledge or needs.
- 5) Recognizing the rich life experiences of adults and providing them with individualized assistance when necessary based on those experiences may

impact learner satisfaction and program completion rates. This may be especially true for adults lacking computer literacy and/or experience with online education.

- 6) Adult learners, including those who participate in online learning, tend to prefer learning from the experiences of others. But this is not always the case.

### Conclusion and Implications

The current study concluded that there were no statistically significant differences in the effects of andragogically-facilitated and pedagogically-conducted online learning modules on foundation grant writing as measured by reaction to learning (course evaluation instrument), program completion, achievement growth (level of evaluative skill) of participants, and grant writing performance scores. The research was set on a true experimental design by randomly assigning volunteer participants from nonprofit agencies to each instructional module. This enabled the researcher to compare outcomes based on learning group in order to determine if there were any statistically significant relationships. This also enabled the researcher to investigate if any differences in effect were caused by instructional modules.

### *Future Research*

Unique limitations exist in both quantitative and qualitative research and working with a topic as broad as this one, the author feels that a combination of quantitative and qualitative research methods to provide findings with both correlative statistical analysis and narrative depth would be the ideal model. The question of andragogy versus pedagogy is as much a question of how people learn as it is a question of how much people learn. More studies like this one are needed to determine qualitatively and



quantitatively the relative efficacy of andragogy versus pedagogy in an online learning environment.

## APPENDIX A

## LEARNER CONSENT FORM AND COURSE EVALUATION

**LEARNER CONSENT FORM**

University of Southern Mississippi

Consent to Act as Human Subjects

Thanks for your interest in participating in a free online learning module on grant reviewing and writing. As the instructor and a doctoral student, I am studying two different methods for teaching the modules. Volunteer participants are being recruited from among adult staff members ages 23 and older whose employer organizations are members of a statewide association for nonprofit professionals. Should you volunteer to participate, the following information will be needed: age, gender, educational level, experience writing grants, course evaluations, pretest and posttest scores, and grant writing performance scores. Your participation would be greatly appreciated. Data will only be used in group form. As a result, neither you nor your employer will be personally identifiable in any published results.

Those individuals who choose to participate may benefit from the online modules by: (1) enhancing their knowledge of foundation grant writing; and (2) improving their performance skills in both scoring grant proposals and writing them. Although the modules will be conducted in a non-formal, non-credit learning environment to lessen participant anxiety, participants may withdraw at any time or choose to participate in an alternative module following the conclusion of the study. Those who complete the study are not required to achieve a specific score. They will, however, receive a letter of completion from the instructor.

I understand the above information and agree to allow Mr. Joe Bradley, a doctoral student, to use the information described. I further understand that I may withdraw from the study at any time, and that my participation in the study is strictly voluntary. If you wish to participate in this study, simply click on the "yes" button. You will then be forwarded to a brief demographic questionnaire and the online module to which you were randomly assigned. If you do not wish to participate in this study, just click the "no" button. Questions may be directed to Mr. Joe Bradley via e-mail at [joe.bradley@usm.edu](mailto:joe.bradley@usm.edu) or by phone at 401-709-3655.

*This project and this consent form have been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820.*

## Course Evaluation Form/Self-Report Instrument

## Course Evaluation for the Andragogical Group

		Mean	S.D.
1.	Prepares well for each class	4.5	0.6
2.	Communicates subject matter	3.7	1.4
3.	Stimulates interest in subject	4.1	1.1
4.	Seems enthusiastic about subject	4.6	0.7
5.	Welcomes student questions	4.6	0.7
6.	Simulates thought/expression	4.6	0.6
7.	Helpful outside of class	4.3	0.9
8.	Cares about students learning	4.4	0.8
9.	Welcomes different points/view	4.5	0.7
10.	Is sympathetic/courteous	4.3	0.7
11.	Demonstrates high standards	4.4	0.8
* 12.	Personal appearance/appropriate	4.5	0.7
13.	Free from annoying mannerisms	4.2	0.8
14.	Ranks among/best teacher ever	4.0	1.0
15.	I would sign up/another course	4.1	1.2
16.	Syllabus provided/beginning/term	4.6	0.7
17.	Course seems well-planned	4.5	0.6
18.	Requirements reasonable	4.3	0.9
19.	Assignments contribute/objective	4.3	0.9
20.	Textbook contributes	4.3	0.7
* 21.	Tests based/assigned materials	4.4	0.7
* 22.	Graded work is returned promptly	4.3	0.8
23.	Types of measurement/reasonable	4.6	0.8
24.	Variety of teaching methods	4.2	1.1
25.	I learned much in this course	4.1	1.2
26.	Recommend course and instructor	4.2	1.1

Note. The measurement is a 5 point Likert scale rating.

Please respond to the following questions in narrative form. Your responses need not be lengthy.

1. As an adult learner, do you enjoy learning from the experiences of fellow adults when participating in non-formal, non-credit learning opportunities? Please explain your answer briefly and provide rationale.
2. Did participation in this course encourage you to consider pursue additional non-formal, non-credit continuing education opportunities in the future? Please explain your answer briefly and provide rationale.

## APPENDIX B

## DEMOGRAPHIC QUESTIONNAIRE

This brief questionnaire is designed to: (1) verify your eligibility to participate in the study and; (2) provide the facilitator with basic information regarding any recent experience you may have in writing grants. Once your answers are complete, you will be able to access the first of three Learning Modules. The requested information will not in any way negatively impact your completion of the program. There are no right or wrong answers.

---

**1. Age Range**

Please select your age range.

1. 18-22
2. 23-29
3. 30-39
4. 40-49
5. 50-59
6. 60-69
7. 70 and over

---

**2. Gender**

Check the box that represents your gender.

- a. Female
- b. Male

---

**3. Educational Level**

Select your highest level of educational attainment.

- a. G.E.D.
- b. High School Diploma.
- c. Bachelor's Degree
- d. Master's Degree
- e. Doctoral Degree

---

**4. Experience Writing Grants**

Check the answer that represents the number of grant proposals that you have written or co-written over the last five years.

- 1. 0
- 2. 1
- 3. 2
- 4. 3
- 5. 4
- 6. 5 or more

---

**5. Experience Writing Funded Grants**

## APPENDIX C

## PRE-ASSESSMENT/POST-ASSESSMENT

This brief post-assessment is designed to help measure your newly acquired knowledge of the basic sections that are included within most grant proposals to foundations.

Please (1) list the basic sections of a typical proposal to a foundation. Do not use any outside resources.

Once your list is complete, (2) review the attached sample foundation proposal.

When reviewed, (3) note the basic sections that are required for most foundation proposals but appear to be missing from the sample proposal, if any.

Next to each item on your list of all basic sections that are included within most foundation proposals, (4) state whether you feel each corresponding section within the attached sample proposal is excellent or needs improvement.

For sections identified as needing improvement, also explain why. Please remember that any section with errors would likely need improvement. Your responses need not be lengthy. Have fun, and good luck!

## APPENDIX D

## PRE-ASSESSMENT/POST-ASSESSMENT SCORE SHEET

(1) List the basic sections of a typical grant proposal to a foundation.

The basic sections include:

- |                    |   |
|--------------------|---|
| <u>  </u> 5 POINTS | (A) The Executive Summary                   |
| <u>  </u> 5 POINTS | (B) The Statement of Need                   |
| <u>  </u> 5 POINTS | (C) The Project Description                 |
| <u>  </u> 5 POINTS | (D) The Evaluation                          |
| <u>  </u> 5 POINTS | (E) The Budget                              |
| <u>  </u> 5 POINTS | (F) Organization Information and Conclusion |

(2) List the basic sections that are required for most foundation proposals but appear to be missing from the sample proposal, if any.

   0 POINTS                      All basic sections are included.

(3) Indicate whether you feel each corresponding section within the attached sample proposal is excellent or needs improvement. For sections identified as needing improvement, also explain why. Please remember that any section with errors would likely need improvement.

- |                     |  |
|---------------------|--|
| <u>  </u> 0 POINTS  | (A) The Executive Summary (EXCELLENT)                |
| <u>  </u> 14 POINTS | (B) The Statement of Need (NEEDS IMPROVEMENT)        |
| <u>  </u> 14 POINTS | (C) The Project Description (NEEDS IMPROVEMENT)      |
| <u>  </u> 14 POINTS | (D) The Evaluation (NEEDS IMPROVEMENT)               |
| <u>  </u> 14 POINTS | (E) The Budget (NEEDS IMPROVEMENT)                   |
| <u>  </u> 14 POINTS | (F) Organization Information/Conclusion (NEEDS IMP.) |

<u>          </u>	SUBTOTAL, SECTION ONE
<u>          </u>	SUBTOTAL, SECTION TWO
<u>          </u>	TOTAL SCORE, (SECTION ONE + SECTION TWO)

## APPENDIX E

## PERFORMANCE ASSESSMENT

Please visit the Alabama Power Foundation website at <http://www.alabamapower.com/foundation/> . You may type or cut and paste this address into your browser to access the website. After reviewing the website, click on “How to Apply” then print the application instructions for future reference.

**PREPARE MOCK PROPOSAL:** Prepare a proposal to the Alabama Power Foundation and closely follow the guidelines provided by Alabama Power Foundation. But please limit your proposal to two pages, depending on your own time limitations.  
**BECAUSE OF TIME LIMITATIONS, SUBMIT ONLY THE FOLLOWING SECTIONS TO THE INSTRUCTOR:** (1) A concise description (no longer than two pages) outlining the project's goals and objectives, specific needs to be addressed by the project, activities planned and achieved so far, implementation plan and timeline, evaluation plan with specific criteria for judging the program's effectiveness, summary of community support for the project, project budget and information about future fund-raising goals. Be sure and label each section of your mock proposal with headings according to the above instructions. Please also remember that your mock topic should meet with both the overall mission of The Foundation as well as several of the guidelines listed under “General Criteria” under “How to Apply” from the Alabama Power Foundation website. Finally, when preparing your mock proposal, please ignore the restriction on proposals from primary and secondary private schools. The “template” you are preparing may be useful when actually applying to other foundations with which your mission and the foundation's priorities are more closely aligned.

**SUBMISSION:** Once complete, save the document on your computer then attach the Microsoft Word file using the “attachments” feature below. Once finished, simply click “submit” to transmit the document. Alternatively, you may submit the document to me as an attachment by sending it from your regular e-mail account to [joe.bradley@usm.edu](mailto:joe.bradley@usm.edu) .

**QUESTIONS:** Please direct any questions to Joe Bradley, Course Facilitator, via e-mail from your regular account to [joe.bradley@usm.edu](mailto:joe.bradley@usm.edu) , through the instant chat feature within this system, or by phone at 401-709-3655. Joe has unlimited long distance and will return your call if requested. Have fun! Remember, a specific score is not required. Just do your best, based on time limitations, and submit.

Thanks again for participating in this dissertation research study. I appreciate your help and hope that you have benefited from this non-formal course.



## APPENDIX F

## PERFORMANCE ASSESSMENT SCORE SHEET

The mock proposal includes the following headings (5 points each) and content for each is acceptable (5 points each).

10 pts  Acceptable       Not Acceptable      goals and objectives  
Comments:

---

10 pts  Acceptable       Not Acceptable      specific needs to be addressed by the project  
Comments:

---

10 pts  Acceptable       Not Acceptable      activities planned and achieved so far  
Comments:

---

10 pts  Acceptable       Not Acceptable      implementation plan and timeline  
Comments:

---

10 pts  Acceptable       Not Acceptable      evaluation plan with specific criteria for judging the program's effectiveness  
Comments:

---

10 pts  Acceptable       Not Acceptable      summary community support-project  
Comments:

---

10 pts  Acceptable       Not Acceptable      project budget  
Comments:

---

10 pts  Acceptable       Not Acceptable      future fundraising goals  
Comments:

---

Topic and priorities meet with foundation guidelines.

10 pts  Yes  No  
Comments:

Topic meets with overall mission of The Foundation

---

10 pts  Yes  No

Topic meets with at least two of the guidelines listed under  
“General Criteria” under “How to Apply” from the  
Alabama Power Foundation website.

Comments:

---

TOTAL SCORE \_\_\_\_\_

---

## APPENDIX G

## SAMPLE LEARNING CONTRACT

Learner: ..... Instructor .....  
 DATE DUE: .....

Learning Objectives	Learning Resources and Strategies	Evidence of Accomplishment Of Objectives	Criteria and Means For Validating Evidence
<p><b><u>Gain basic knowledge on foundations, developing proposals and budgeting</u></b></p>	<p>Online tutorials, webinars, and sounds files as offered by The Foundation Center. (perhaps also list those you plan to complete before the end of this course, based on your needs and time limitations)</p>	<p>Submit list of tutorials and webinars completed to the course facilitator, as well as brief summaries of knowledge acquired or lessons learned.</p>	<p>Facilitator will discuss with learner once completed.</p>
<p><b><u>Develop a plan for professional and continuing education on grants.</u></b></p>	<p>Discussions and e-mails with the course facilitator. (the instructor is also available on a volunteer basis to assist learners in developing a continuing education plan once this course concludes)</p>	<p>In conjunction with the course facilitator, a plan for professional development relating to foundation grants will be developed to encourage me to pursue additional continuing education activities once this course concludes.</p>	<p>Facilitator will discuss with learner once completed.</p>

## Objectives

Objectives are what you want to LEARN in the course (not what you will do). Be sure to write them in the form of what you wish to learn or gain knowledge about.

### Learning Resources and Strategies

Resources and strategies are the means you will use or the activities you will undertake in order to achieve your objectives.

### Evidence of Accomplishment of Objectives

This column is a list of the documents or other visible evidence that will be included in your "Summary of Evidence."

## APPENDIX H

DESIGN ELEMENTS FOR ANDRAGOGICAL AND PEDAGOGICAL ONLINE  
LEARNING MODULES ON GRANT WRITING

	<b><u>Andragogical Module</u></b>	<b><u>Pedagogical Module</u></b>
Climate	Collaborative via e-mails and informal phone discussions with facilitator.	Instructor-oriented.
Planning	Mutual planning with facilitator of individualized objectives, resources and evidence of learning.	Planning completed by instructor.
Diagnosis of Needs	Mutual diagnosis of needs with facilitator.	Needs determined by instructor.
Formulation of Objectives	Negotiation of learning contract with facilitator based on mutually identified needs.	Prescribed by instructor.
Design	Problem units.	Content units.
Activities	Experiential. online bulletin board discussions based on readings and learner experiences to promote inquiry and sharing of best practices.	Readings and responses to instructor via online assignment submission box.
Evaluation	Collaborative through submission of mutually agreed upon evidence via learning contract, and review of achievement and performance assessments by experts.	Exclusively by experts via review of achievement & performance tests to ensure comparability.

## APPENDIX I

## RECRUITMENT E-MAIL

Dear Nonprofit Leader:

**Congratulations! Your nonprofit organization has been selected to participate in a FREE three-week online learning module on foundation grant reviewing and writing.** The modules, which are ideal for novice grant writers and those seeking a brief refresher course, will begin on Wednesday, March 25th, and conclude by Saturday, April 11th. Estimated completion time is less than 10 hours. Valued at \$995/participant plus free texts, the modules may be completed from home and/or office at your convenience and with no specific log-in times.

As the instructor and a doctoral student of adult education at The University of Southern Mississippi, a research extensive university, I am studying two different methods for teaching the modules. Volunteer participants are being recruited from among adult staff members ages 23 and older whose employer organizations are members of three statewide associations for nonprofit professionals. Your participation would be greatly appreciated! Data will only be used in group form. As a result, neither you nor your employer will be personally identifiable in any published results. Each invited nonprofit may register up to two of its administrators and/or staff members to participate. Those individuals who choose to participate may benefit from the online modules by: (1) enhancing their knowledge of foundation grant writing; and (2) improving their performance skills in both scoring grant proposals and writing them.

Although the modules will be conducted in a non-formal, non-credit learning environment to lessen participant anxiety, participants may withdraw at any time or choose to participate in an alternative module following the conclusion of the study. Those who complete the study are not required to achieve a specific score. They will, however, receive a letter of completion from the instructor.

**Please note that slots are limited to the first 70 registrants only. To help secure slots for your own nonprofit, therefore, please submit registrant information for up to two administrators and/or staffers via e-mail ( [joe.bradley@usm.edu](mailto:joe.bradley@usm.edu) ) to Mr. Joe Bradley, instructor and doctoral degree candidate, by no later than **5 pm on Friday, March 13th**, as follows: (1) name; (2) position or title; (3) agency name; (4) phone number; (5) e-mail address; and (6) preferred mailing address for free textbooks. The first 70 registrants will then receive a user name and password via e-mail to access the university's online learning system by Wednesday, March 25<sup>th</sup>.**

Questions may be directed to Mr. Joe Bradley via e-mail at [joe.bradley@usm.edu](mailto:joe.bradley@usm.edu) or by phone at 401-709-3655. Thanks again for helping to meet the most pressing needs of your state or locale. I look forward to receiving your registration information by Friday, March 13<sup>th</sup>.

Best Regards,

**Joe Bradley**, MSCE, Candidate for PhD in Adult Education

## APPENDIX J

## INSTITUTIONAL REVIEW BOARD APPROVAL




---

 THE UNIVERSITY OF SOUTHERN MISSISSIPPI
 

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Institutional Review Board

118 College Drive #5147  
 Hattiesburg, MS 39406-0001  
 Tel: 601.266.6820  
 Fax: 601.266.5509  
 www.usm.edu/irb

**HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE  
 NOTICE OF COMMITTEE ACTION**

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

**PROTOCOL NUMBER: C29020302**

**PROJECT TITLE: A Comparison of Course Completion, Satisfaction, Achievement and Performance Among Non-Profit Professionals Who Complete Andragogical and Pedagogical Online Learning Modules on Grant Writing**

**PROPOSED PROJECT DATES: 02/01/09 to 12/31/09**

**PROJECT TYPE: Dissertation or Thesis**

**PRINCIPAL INVESTIGATORS: Joe Bernard Bradley**

**COLLEGE/DIVISION: College of Education & Psychology**

**DEPARTMENT: Educational Leadership & Research**

**FUNDING AGENCY: N/A**

**HSPRC COMMITTEE ACTION: Expedited Review Approval**

**PERIOD OF APPROVAL: 04/14/09 to 04/13/10**

*Lawrence A. Hosman*  
 \_\_\_\_\_  
 Lawrence A. Hosman, Ph.D.  
 HSPRC Chair

*4-14-09*  
 \_\_\_\_\_  
 Date



# THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #5147  
 Hattiesburg, MS 39406-0001  
 Tel: 601.266.6820  
 Fax: 601.266.5509  
 www.usm.edu/irb

## HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE NOTICE OF COMMITTEE ACTION

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- The risks to subjects are minimized.
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- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.  
 Projects that exceed this period must submit an application for renewal or continuation.

**PROTOCOL NUMBER: 29020302**

**PROJECT TITLE: A Comparison of Course Completion, Satisfaction, Achievement and Performance Among Non-Profit Professionals Who Complete Andragogical and Pedagogical Online Learning Modules on Grant Writing**

**PROPOSED PROJECT DATES: 01/01/09 to 12/31/09**

**PROJECT TYPE: Dissertation or Thesis**

**PRINCIPAL INVESTIGATORS: Joe Bernard Bradley**

**COLLEGE/DIVISION: College of Education & Psychology**

**DEPARTMENT: Educational Leadership & Research**

**FUNDING AGENCY: N/A**

**HSPRC COMMITTEE ACTION: Expedited Review Approval**

**PERIOD OF APPROVAL: 02/03/09 to 02/02/10**

*Lawrence A. Hosman*  
 \_\_\_\_\_  
 Lawrence A. Hosman, Ph.D.  
 HSPRC Chair

*2-6-09*

\_\_\_\_\_  
 Date



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