THE EFFECT OF ON-SCREEN INSTRUCTOR GENDER AND EXPRESSIVITY UPON ADULT LEARNING OF BASIC COMPUTER SKILLS FROM AN INSTRUCTIONAL VIDEOTAPE

by

Arnold Burt Meyrow

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APPROVED:

A. K. Wiswell, Chairman

J. Fortune

R. McKeen

L. French

H. Stubblefield

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Committee Chairman: Albert K. Wiswell
Adult and Continuing Education

(ABSTRACT)

The purpose of this study was to determine the effects of on-screen video instructor gender and expressivity upon the competency based performance of adults in the learning of basic computer skills from a series of locally produced instructional videotapes. These tapes were typical of the type of instructional videos used by corporations, government, and schools to train adults.

A 2 x 3 factorial design was used to analyze the variables effects on learning. The independent variables were instructor gender and instructor expressivity. Mediating variables were student gender, ethnicity (as measured by first language), reading level, and attitude towards computers. The dependent variable was student

learning as measured by a 20 question multiple choice exam. The subjects (n=120) used in the study were under employed or unemployed adults. Sixty-nine percent were considered to be limited speakers of English.

Six videotapes were produced. These tapes were identical in every way except that in three tapes a male actor taught in respectively low, average, and high expressive manners. In each of the other three tapes a female acted in a low, average and high expressive manners. Each subject viewed one of the tapes, in groups of eight to ten students, and was immediately tested on the material presented in their tape. Students were also asked to rate the instructor they saw on a five item scale of expressivity.

The findings showed no significant main effects for either on-screen instructor gender or expressivity. A significant interaction was found between on-screen instructor gender and expressivity, as measured by the students. Students viewing the low expressive male and the high expressive female scored higher on the exam than students viewing either the high expressive male or the low expressive female.

Performance on the test was correlated with student reading level, computer experience, the time it took to take the exam, and student ethnicity (as measured by first language spoken). Additionally, a significant interaction

was found between student gender and instructor gender. Students viewing instructors of the opposite gender scored higher than those viewing instructors of the same gender.

The implications of this study suggest that subject matter and student population be considered in both the design of instructional television programs and in the casting and the directing of talent for these programs.

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CHAPTER I

INTRODUCTION

Training workers to perform their jobs competently and to understand the goals of the organizations which employ them is big business. In 1987, an estimated 38.8 million workers in the United States received 1.2 billion hours of training (Wells, 1989). Job training's current yearly cost of 210 billion dollars (Carnevale, Gainer, and Villet, 1990) is expected to rise each year in the near future by about five percent (Ross, 1988). In their effort to meet these huge demands for delivering competent and timely training efficiently, businesses have turned to videotaped training programs. The International Television Association (1987) reported that in 1986 over five billion dollars a year was spent on the use of instructional television by business, industry and government. Often, videotape offers the only practical solutions to the nagging problems of how to give large numbers of employees high quality instruction (Chu and Schramm, 1967; Butler, 1980; Gayeski, 1983; Gagné, 1978; Erich, 1989; Fassler, 1989).

As more emphasis is placed on providing training through videotape, the most highly effective methods of video instruction are sought. Companies need their employees to acquire the knowledge, skills, and attitudes necessary to perform their jobs successfully. Those in

charge of designing and delivering instruction are obliged to select the best possible means of conveying that instruction (Berlo, 1960; Gagné, 1987).

Accordingly, the instructional designer and the producer of instructional videotapes must consider the nature of the audience being addressed, the subject matter being taught, the form of delivery of that instruction and the nature of the on-screen instructor. Research has shown that the gender and expressivity of the instructor (Putnam, 1983; Basow and Distenfeld, 1985) and student gender, ethnicity, English proficiency, and attitudes are important factors in the successful transfer of information to adults through the use of videotaped instruction (Berlo, 1960; Globig and Touhey, 1971; Rossiter, 1972; Schramm, 1972, 1977; Duberman, 1975; Giles and St. Clair, 1980; Pearson, 1980; Gilbert, 1981; Gayeski, 1983; Gagné, 1987; Lee, 1987). However, studies have related disparate conclusions on the effect of these factors on learning (Globig and Touhey, 1971; Balon, 1977; Chiddix, Gilbert, and Lee, 1981; Basow and Distenfeld, 1985; Borisoff and Merrill, 1985; Cadeau and Moore, 1985; Gill, Johnson, Stockard, and Williams, 1987; Ferrante, Haynes, Kingsley, and Widner, 1988; Blier and Blier-Wilson, 1989).

Finding the most effective means of delivering video instruction is complicated by the pervasiveness of

television in American life. Not only must instructional designers develop interesting curriculum well-suited to organizations' goals and students' needs, they must also use video techniques that will fulfill these expectations and hold the interest of sophisticated television viewers. To this end, many corporate instructional designers and video producers have taken their cue from the learning techniques and audio/visual style of popular commercial and public broadcasting programmers. A new approach to the program structure, visual presentation, and message design of industrial and corporate training videos is evident. By assimilating the visually exciting techniques of high quality commercial television, video training tape producers can make dry and boring material exciting, interesting, and easily remembered (Butler, 1980; Erich, 1989; Krueger, 1989). Thus, video becomes a practical, efficient, and interest-holding means of educating employees accustomed to television as a part of their everyday lives.

While exciting video presentations are desirable, instructional goals can easily be lost in the drive to create a dynamic visual impact. To ensure that video training tapes achieve their instructional goals, the elements that comprise the finished video product must be carefully studied for their positive contribution to encouraging student learning. The instructor, the topic,

the curriculum, the settings shown on the tape, the graphics, and the music used can all have a positive or a negative influence on the learning of the targeted audience. Of all these elements of the videotape production, the instructor holds the most obvious and fundamental role for the viewer (Schramm, 1972, 1977; Pearson, 1980; Gilbert, 1981; Gayeski, 1983; Basow and Distenfeld, 1985; Gagné, 1987). Because of his or her key position, the director must select the on-screen instructor with careful consideration to the kind of relationship the person chosen will be able to establish with the audience.

This instructor-student relationship is central in assisting the audience in understanding the material being presented (Berlo, 1960; Schramm, 1972, 1977; Pearson, 1980; Gilbert, 1981; Gayeski, 1983; Gagné, 1987). Usually, directors of videotapes attempt to match the instructor and audience. For example, if the intended audience will be construction workers, the director will probably choose a male instructor who can speak to the construction workers as a colleague, or as their supervisor. If the intended audience will be office workers responsible for clerical duties, the instructor will probably be a woman who appears to be an office manager or supervisor. Thus, the choice of instructors in instructional videotapes relies primarily on the stereotypes of the traditional roles in our society.

Who, therefore, should the narrator be in a videotape designed to teach a group of adults beginning computer skills? Are men or women traditionally associated with computers? To further complicate the choice, what if the majority of the students are immigrants with their own cultural biases and traditions? Obviously, the practice of matching instructor and audience based on stereotypical roles will not always succeed. As societal roles change and as more women enter non-traditional female career areas, stereotypes may change, or even disappear (Basow and Distenfeld, 1985). Should the choice of the instructor be made exclusively on the hoped-for effect on the audience? Further, should the instructional designer assume an iconoclastic role by taking the lead in breaking these cultural stereotypes and biases; even if this posture diminishes the effectiveness of the instruction? Many unaddressed and unanswered issues revolve around the selection of the gender of on-screen instructors.

In addition to the gender of the on-screen instructor, the question of how this instructor should perform in front of the camera and microphone is crucial to the success of any instructional videotape? Should the instructor be warm and expressive to encourage the students to do their best work, or should the instructor be somewhat distant and objective to communicate the seriousness of the subject

matter? Preconceived ideas about teacher behavior reside in everyone. Some research (Rogers, 1961; Chu and Schramm, 1967; Rossiter, 1972; Brend, 1975; Gilbert, 1981; Knowles and Maslow in Darkenwald and Merriam, 1982; Fassler, 1989) indicates that warm, nurturing teachers bring out the best in students. Others, (Watson, 1924; Thorndike, 1932; Skinner, 1968) are equally convinced that strict, direct, no-nonsense teachers enable students to give their best. Within the confines of the videotape, one instructor must usually meet the needs of all the students watching the tape. As designers of instructional videotapes attempt to affect learning by more accurately matching audiences' beliefs about instructor gender and manner of relating to students, the selection of the videotape instructor presents an interesting dilemma for video producers.

In Borrisoff and Merrill (1985) De Beauvoir (1952) wrote that "... men [people] describe the world from their own point of view, which they confuse with the absolute truth" (p. 13). It is from this truth that our internalized masculine and feminine stereotypes have evolved. Television producers have long adhered to the common folklore that men's words and opinions are more listened to, valued, and respected than are women's (Sachs, Lieberman and Erickson, 1978; Mattingly, 1991). The presence of these biases is widely supported in the literature (Wolfram, 1974; Trudgill,

1975, 1983; Sachs, Lieberman and Erickson, 1978; Labov, 1980; Borrisoff and Merrill, 1985; and Mattingly, 1991). Should producers continue to foster these stereotypes, or should they try to re-educate clients and audiences? Should the choice of the instructor be made based exclusively on the anticipated effect on the audience?

Statement of the Problem

Because the instructor in a video training tape occupies such an important position in communicating the goals of the organization to the student audience, the most effective characteristics of video instructors need to be identified. Only then can instructional designers and video producers make informed choices as to who they cast as talent in their training tapes and how they will direct them to act in front of the camera (Berlo, 1960; Schramm, 1972, 1977; Pearson, 1980; Gilbert, 1981; Gayeski, 1983; Gagné, 1987).

Instructor gender is the most readily observable of the characteristics inherent in instructors (Schramm, 1972, 1977; Pearson, 1980; Gilbert, 1981; Gayeski, 1983; Basow and Distenfeld, 1985; Gagné, 1987). Due to the past traditions of our culture, men have dominated as on-screen video instructors (Brend, 1975; Duberman, 1975; Butler, 1980; Borisoff and Merrill, 1985; Edelstein, Ito, and Kepplinger,

1989). Despite the great strides that women have made in achieving respect in the broadcasting industry (Christopher, 1976; Prime time, 1977; Moore and Cadeau, 1985; Ferrante, et al, 1988), the American television audience perceives male domination in this field as natural. So, while instructor gender will be a factor considered in determining the effects on the students' achievement, our cultural biases may still be the primary influence on achievement and will remain so until more women are seen in broadcast television and in video training tapes (Butler, 1980; Borisoff and Merrill, 1985; Thomas and Kobayashi, 1987; Edelstein, Ito, and Kepplinger, 1989).

Past traditions of our society suggest that unexpressive males, or a somewhat strict authority figure, have a positive impact on student learning. While females, who hope to have an influence on learning, should act in a warm and personal manner with their students (Brend, 1975; Borisoff and Merrill, 1985; Connell, 1987; Eagly, 1987). However, our traditional views of the roles of men and women have been disrupted and are in a state of flux. Current research indicates that the effect of these changing roles on student achievement is yet to be determined.

The effect of the instructor's ability and willingness to reach out to the student audience in an animated and personal manner, his or her expressivity, may influence the

audience's receptivity to either gender. The animation and warmth of an instructor seem likely to influence a viewer to regard or not regard an instructor as believable (Pearson, 1980; Brophy, 1981; Abrami, Leventhal, and Perry, 1982; Perry and Magnusson, 1987). The average American has witnessed 450,000 commercials and 17,000 hours of television by the time they are eighteen years of age; we watch at least twenty movies for every book we read (Harrington, 1973). We live in a time when the roles of women at home, in society, and in the work place are changing; in a time when women are gaining acceptance as authority figures; in a period when the use of video-based instruction is becoming the norm for organizational training. A consideration of how students are affected by the gender and expressivity of their video instructor is extremely appropriate.

Purpose Statement

The purpose of this study was to determine the influence of gender and expressivity of the on-screen instructor in an instructional video program upon the learning success of adult students. The degree of success was determined by a 20 question objective examination.

Research Questions

The primary questions addressed were:

1. What is the effect of on-screen video instructor gender upon the learning of basic computer skills by adults?
2. What is the effect of on-screen video instructor expressivity upon the learning of basic computer skills by adults?
3. What is the effect of the interaction between on-screen instructor gender and on-screen instructor expressivity upon the learning of basic computer skills from a videotaped lesson?

Additional analysis addressed the effect of on-screen instructor gender and expressivity as related to six student organismic variables. They were: student gender, student ethnicity (as measured by their first language), student reading level, student's prior experience with computers, student attitude toward computers, and the time it took to take the exam.

Hypotheses

In this investigation of the effect of on-screen instructor gender and expressivity upon the adult learning of basic computer skills from a locally produced

instructional video tapes the following hypothesis were formulated:

1. On-screen video instructor gender has no effect upon the learning of basic computer skills by adults.
2. On-screen video instructor expressivity has no effect upon the learning of basic computer skills by adults.
3. The effects of the interaction between on-screen video instructor gender and expressivity has no effect upon the learning of basic computer skills by adults.

Need for the Study

In order to be competitive in today's marketplace organizations have to constantly train, and re-train their employees. Videotape offers a practical solution to the pervasive problem of how to provide large numbers of employees consistent, high quality, cost effective instruction. As a result, billions of dollars a year are being spent on video based training. It is up to instructional designers and video producers to ensure that video training tapes achieve intended instructional goals. Of all the elements of the videotape production, the instructor holds the most important role for the viewer

(Schramm, 1972, 1977; Pearson, 1980; Gilbert, 1981; Gayeski, 1983; Basow and Distenfeld, 1985; Gagné, 1987). We live in a constantly changing society. As societal roles change and as more women enter non-traditional career areas, stereotypes may change, or even disappear (Basow and Distenfeld, 1985). As we teach a varied ethnic and cultural student population, traditional ideas of who an on-screen instructor should be and how they should act in front of the camera are called into question. The choice of the instructor will be based exclusively on the anticipated effect on the audience. But how do we know just how to achieve that, hoped-for effect?

As designers of instructional videotapes attempt to affect learning by more accurately matching audiences' beliefs about instructor gender and manner of relating to students, the selection of the videotape instructor presents an interesting dilemma for video producers. Currently those charged with designing and producing these programs are making uninformed decisions about who will appear, and how they will act, in these training tapes. Decisions are being made on the strength of preconceived cultural stereotypes, gender biases, common folklore, and purely empirical observations (Moore and Cadeau, 1985; Ferrante, et al, 1988; Edelstein, Ito, and Kepplinger, 1989).

If it could be demonstrated that these cultural stereotypes and biases are not based in fact, instructional designers and producers may at least begin to rethink their positions. At best, it is hoped that they would change their mind-set about the roles of men, women, and their on-screen character. If it is demonstrated that there are differences in learning that can be attributed to gender and expressivity, then the stage will be set to investigate and discuss the root causes of these differences. In either event, the outcome of this study will serve both as a guide to instructional designers and producers of videotapes, and as a seed to begin a dialogue on the issue of on-screen gender and expressivity. On a wider scale this study will contribute to the knowledge-base of what constitutes effective videotaped instruction.

Definitions Of Terms

Channel: the means of conveyance of the stimuli (a message) the source creates to communicate with the receiver (a person).

Competency-based learning: learning which requires the student to display the specific knowledge and skills being taught.

Decoding: the process of translating a transmission (a videotaped message) into a form that is understandable to the receiver (the learner).

Encoding: the process of translating stimuli (a message) into an appropriate form for transmission (in this case a videotape).

Expressive communication: a situation in which the actors incorporate hand gestures, smiles, vocal inflection, varied vocal pacing, varied vocal modulation, facial expressivity, head movements, and physical movement.

Feedback: the feedback loop sends information from the receiver (the student) back to the transmitter (the teacher). This enables the transmitter to be the check on the accuracy of the message that was received.

Message: the stimulus (verbal or non-verbal) that the source transmits to the receiver.

Noise: anything that prevents the communicator from clearly imparting messages to the receiver.

Organismic variables: student related characteristics or variables (Campbell and Stanley in Borg and Gall, 1983, p. 697).

Receiver: the destination for the stimuli (message).

Source: the originator of the message in communication

Talent: the person or persons who appears on, or whose voice is heard over, the television. Also known as on-screen or

off-screen talent. In this study these peoples are the video instructors.

Telepromptor: a TV monitor and mirror that fits in front of a TV camera lens. It displays the text of the program script in such a way as to permit the on-screen talent to read the text while looking straight into the camera lens and thereby maintaining eye contact with the viewing audience.

Unexpressive communication: a situation in which the actors do not incorporate hand gestures, smiles,vocal inflection, varied vocal pacing, varied vocal modulation, facial expressivity, head movements, and physical movement.

Video-based training: an instructional lesson in which all or most of the information to be learned is presented to the student on television. The lesson may be either live or pre-taped.

Delimitations

This study was delimited to an investigation of the following:

1. The focus was on the effect of on-screen instructor gender and expressivity upon the adult learning of basic computer skills from an instructional videotape.

2. The study sample were students enrolled at the Employment Training Center located at the Arlington Career Center, Arlington, Virginia.
3. This study took place over a 12 week period beginning on May 15 and ending August 1, 1991.
4. While some instructional videotapes use professional actors, other programs use company employees who are either content specialists in the field being taught, or are identified as individuals who have a good voice and/or an acceptable physical appearance. The level of instructional video programming of concern to this investigator always uses professional talent as the main imparter of information. Therefore, this study used professional actors.

Limitations

Many instructor and student centered variables influence learning. This study was limited to the effects of on-screen video instructor gender and expressivity upon adult learning. The student factors of interest are: student gender, student ethnicity (as measured by their first language), student reading level, student's prior experience with computers, student attitude toward computers, and the time it took to take the exam.

Due to sample size and cost factors only the two main effect independent variables of video instructor's on-screen gender and expressivity were investigated using quasi experimental methods. However, a descriptive analysis was provided for each of the organismic variables of student gender, student ethnicity (as measured by their first language), student reading level, student's prior experience with computers, student attitude toward computers, and the time it took to take the exam.

The video instructors used in this study were professional actors. However, due to cost constraints they did not have a great deal of experience acting on television.

The sample population at the Employment Training Center were mostly foreign born students. Sixty-nine percent were considered to be limited speakers of English. In order to adjust for this as a threat to the internal validity of the study a competency based exam was used as the measure of learning. The use of a competency based exam and the nature of the subject matter prevented a valid reliability reading on the instrument.

Organization of the Study

Chapter one consists of an introduction, background and conceptual framework for the study, statement of the

problem, and the purpose statement. The research questions, need for the study, definitions, delimitations, and limitations are also included.

Chapter two provides a review of the literature on instructors gender issues as related to videotaped instruction/learning of competency based skills. Chapter three describes the research design and methods to be used. Chapter four present the results and the data analysis. Chapter five presents the conclusions and recommendations.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this study was to determine the effect of on-screen video instructor gender and expressivity upon the competency based performance of adults in the learning of basic computer skills from a videotape.

Adult educators are increasingly turning to video-based training as a means of educating employees, students, and customers. As more emphasis is placed on providing training through videotape, the most highly effective methods of video instruction are being sought. Trainers and producers of instructional videotapes must consider the nature of the audience being addressed, the subject matter being taught, the form of delivery of that instruction, and the nature of the person(s) being chosen to teach that information. Because on-screen video instructor gender and expressivity are two of the most readily observable and important of the characteristics inherent in video-based instruction (Berlo, 1960; Globig and Touhey, 1971; Rossiter, 1972; Schramm, 1972, 1977; Pearson, 1980; Chiddix et al, 1981; Gayeski, 1983; Basow and Distenfield, 1985; Gagné, 1987; Lee, 1987), the focus of this study was on the effect of on-screen video instructor gender and expressivity on learning. Four characteristics of the learner (the audience) were identified as playing an especially important role in the

learning process. They were student: gender, ethnicity, English proficiency, and attitude towards the subject matter (Schramm, 1972, 1977; Pearson, 1980; Chiddix et al, 1981; Gayeski, 1983; Basow and Distenfield, 1985), which in this study was personal computers.

This chapter is divided into three sections. The first section presents a foundation of communications theory as related to the training of adults by way of instructional videotaped methods. The second section presents a review of the literature related to the effects of instructor gender as it pertains to adult learning through the use of instructional videotape. The third section presents a literature review of on-screen instructor expressivity as it relates to adult learning through the use of instructional videotape.

Theoretical Foundation: Communications Theory

The disseminator of knowledge plays a key role in any communications process (Shannon and Weaver, 1949; Berlo, 1960). Either in a live teaching situation or in a taped learning environment, choosing on-screen narrators and actors and directing their performance are key elements in production design (Pearson, 1980; Gayeski, 1983; Basow and Distenfield, 1985; Gagné, 1987).

This study is grounded in two primary areas. They are communications and adult education theory as they relate to

the effect of instructor gender and expressivity upon adult learning from an instructional videotape. The communications conceptual framework, as shown in Figure 1, on page 24 and in Figure 2, on page 26, is based upon the seminal communications models first conceived by Shannon and Weaver (1949), further developed by Berlo (1960), and refined by McCroskey (1968, 1971). In these models the variables of source, message, encoding, channel, decoding, receiver, noise, and feedback are used to describe, discriminate, categorize, discuss, and analyze communications processes.

The information source is the creator of the message, the channel is the medium by which the information is transmitted, and the receiver is the audience. Encoding is the process of translating messages into an appropriate form for transmission; decoding is the process of translating an encoded transmission into a form that is understandable to the receiver. Noise is anything that prevents the message from being clearly imparted to the receiver. The feedback loop sends information from the receiver back to the transmitter. This enables the transmitter to check on the accuracy of the message that was received (McCroskey, 1968, 1971).

First devised to explain the technical (electronic) process of communications, Shannon and Weaver's model (1949)

has been widely adopted, adapted, and quoted as a model of human communication (McCroskey, 1978). Carroll's (1955) model first introduced the importance of source intentionality and the receiver's interpretive behavior as having impact upon the message. As shown in Figure 1, on page 24, Berlo's (1960) SMCR (Source, Message, Channel and Receiver) model builds upon Shannon and Weaver's (1949) model by adding several human/societal elements that affect the communications process; notably the source and receiver's communication skills, attitudes, knowledge, the societal system under which they live, and their cultural environment.

As is seen in Figure 1, on page 23, Berlo (1960) cites five humanistic communications related traits in his model. In this study these traits are called organismic variables (Campbell and Stanley in Borg and Gall, 1983, p. 697). They are communications skills, attitudes, knowledge, social system, and culture. They are shared by both the source and the receiver and are, by their very nature, heavily laden with cultural stereotypes and biases (Berlo, 1960). The channels which are used to deliver the message is our five senses of seeing, hearing, touching, smelling, and tasting.

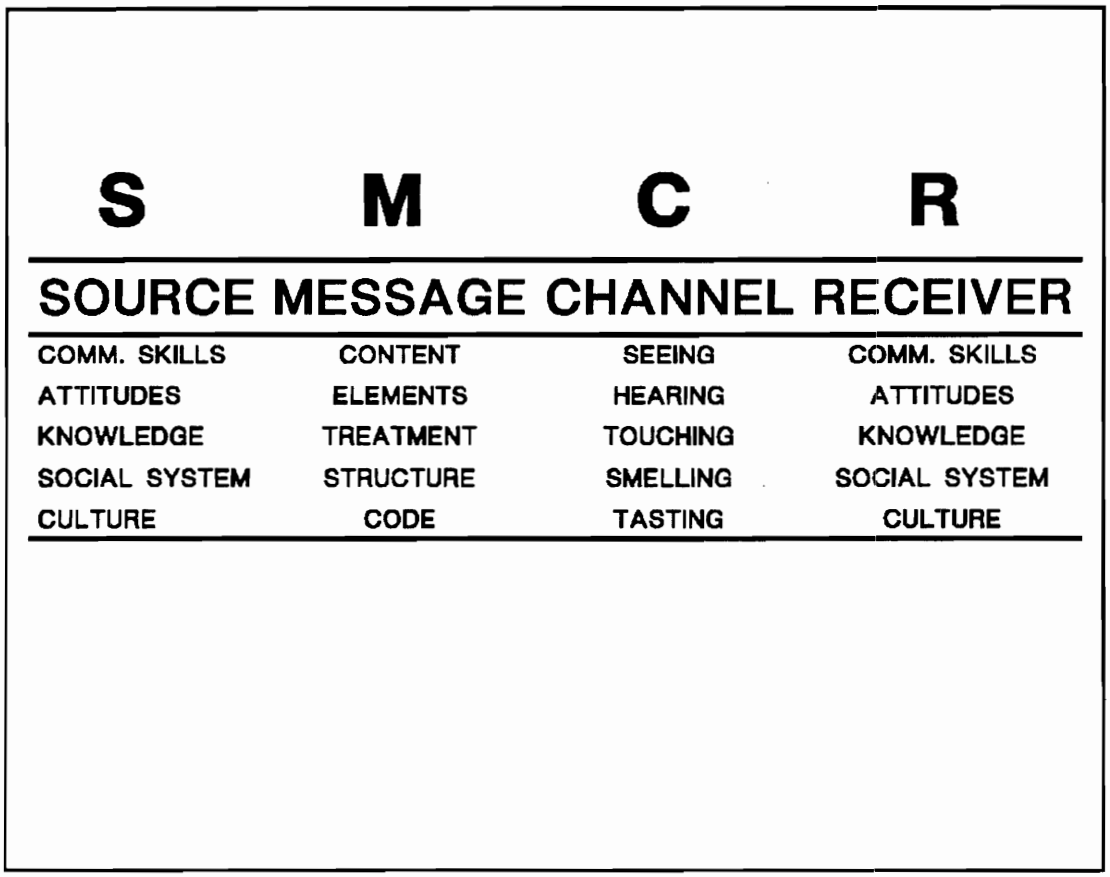

Figure 1.

Berlo's SMCR Model of the Communications Process

Adapted from The process of communication: An introduction to theory and practice by D.K. Berlo, 1960, San Francisco:Rinehart Press.

These are the physical mechanisms of channeling information from the source to the receiver. Here too, noise may interfere with the effective transfer of messages (Berlo, 1960). It is within these ten human attributes that the majority of the noise in the communications process occurs (McCroskey, 1971).

Berlo's (1960) model described two new terms to account for the human effect upon the communications process. He called them encoding and decoding. Encoding is the process by which an idea is translated into a form that is appropriate for transmission. Decoding is the process by which the stimuli (message) that is received is interpreted for meaning by the receiver (Carroll, 1955; McCroskey, 1968; McCroskey, 1971). McCroskey's (1968) model elaborated upon the noise elements that Shannon and Weaver (1949) described in their technical model as any factor that interferes with communications. McCroskey (1968) also added the important concept of a feedback loop. As can be seen in Figure 2, on page 25, feedback loops ensure a shared meaning of the message between the transmitter and the receiver. This is accomplished by setting up a channel for the receiver to feed back their understanding of the original message to the transmitter. In this way the message sent may be compared to the message as it was received.

RHETORICAL COMMUNICATIONS PROCESS

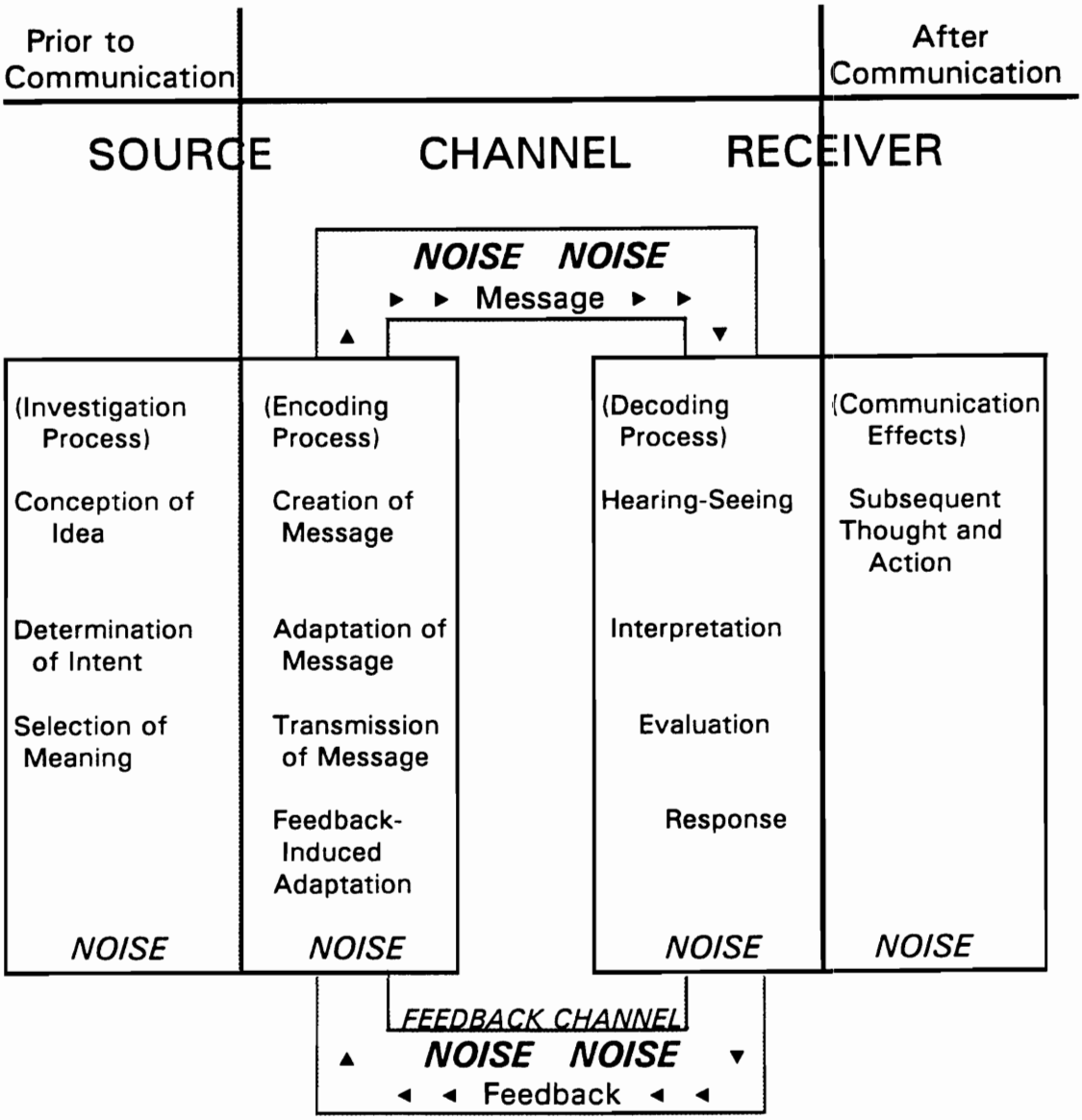

Figure 2. The McCroskey Model of Communications. Adapted from An introduction to rhetorical communication by J. C. McCroskey, 1968, Englewood Cliffs, N.J.: Prentice Hall Inc.

Shannon and Weaver (1949) first introduced the concept of noise as a factor that interferes with communications. Berlo (1960) further defined noise "... to include factors in each of the ingredients of communication [source, encoder, message, channel, decoder, and receiver] that can reduce effectiveness" (p. 40). Eliminating noise increases effective communication; the production of noise reduces effective communication (Berlo, 1960). Because noise can appear in any or all of the elements of communications, it is the one element that is responsible for most mis-communications (McCroskey, 1968). It is the foremost component in the communications model that acts upon the facilitation, or lack thereof, of the successful transfer of information (messages) between the source and the receiver.

The McCroskey (1968) model, as shown in Figure 2, on page 26, depicts an evolution of Berlo's (1960) conception of the communications process. McCroskey's (1968, 1971) model is notable in two ways. First, it depicts the pervasive presence of the noise factor in the communications process. Noise appears in all aspects of communications.

An effective communication process establishes a unity of thought between a sender and a receiver (Schramm, 1965). How is that unity best achieved in video-based instruction? According to Berlo (1960), there are four factors within the source that increase the effectiveness of communication.

They are communication skills, attitudes, knowledge level, and position within a social-cultural system. Communications skills include reading, writing, speaking, listening, and thought or reasoning. Berlo (1960, p. 45) defines source attitude as a desire to associate or disassociate with a person or an idea. He stresses the importance of the source's knowledge level of the subject matter and the audience as a key to effective communications. Berlo (1960, p. 46) also examines the importance of the audience's perception of the source within a social-cultural system.

Source expressivity is a communications skill. Source gender is related to our social-cultural system values, prejudices, and biases. Instructor expressivity and gender are closely related to the noise factors discussed in the McCroskey's Model of Communications (1968). Therefore, the models set forth by Berlo and McCroskey serve as the basis for the conceptual framework of this study.

Research has shown (Globig and Touhey, 1971; Rossiter, 1972; Pearson, 1980; Chiddix et al, 1981; Basow and Distenfield, 1985) that instructor gender and instructor expressivity are crucial catalysts or obstructions to the flow of communications. Basow and Distenfield (1985) found that college students (n=121) who viewed videotaped lectures by a male or female actor using either expressive or non-

expressive communication, scored lowest when viewing the non-expressive male and highest with the non-expressive female. However, Pearson (1980) found no effects on learning between nursing students (n=80) viewing male or female instructors acting in either expressive or non-expressive manners.

In summary, the communications process is concerned with establishing a unity of thought between a sender and a receiver. Both the characteristics of the sender and the receiver must be studied when designing instructional videotapes. The elements of noise and feedback in the communications process play an important role in the successful transmission, reception, and understanding of messages.

The literature is clear that the qualities of on-screen instructors in videotaped lessons and the nature of the audience being addressed play key roles in the communications process. The choice of on-screen instructors and the directing of their performance are key elements in reducing noise in design of instruction videotapes. Knowledge of the receiver (the audience) and employing noise reducing techniques such as adult learning theory will further insure the successful transmission of messages (learning). Yet, the limited research done in the field has come up with varied results.

Berlo (1960) cites six ingredients of communication. They are, as stated above, the source, encoder, message, channel, decoder, and receiver. According to Berlo (1960) "In analyzing communication, we are interested in determining what increases or reduces the fidelity of the process" (p. 40). By studying the effect of instructor gender and expressivity upon the communication process (learning) this study focused on the effects of noise upon the source, the encoder, the decoder and the receiver. The message and the channel was held constant by use of videotape.

The Effects of On-Screen Instructor Gender On Learning

> "On Christmas Eve 1906, radio operators on ships at sea would hear the first voice radio broadcast- a man speaking, a woman singing, and a violin playing."
>
> Thomas (1987, p. 93)

In 85 years little has changed in the perceptions of the role of men and women in the media. Women entertain, men inform. It has been only in the last ten years that women have begrudgingly been afforded the opportunities to compete equally as on-air/on-screen personalities (Christopher, 1976; 1977, March; Bluhm, 1982,).

Video producers and educational designers have historically paid very little attention to the on-screen video instructor's gender as related to their efficacy as a mediator of learning (Cadeau and Moore, 1985). There is a common folklore in the industry that men are to be used whenever possible (Balon, 1977). Cadeau and Moore (1985) reported on the content analysis of over 1,733 television commercials shown over an eight week period. Results indicated that males accounted for over 88% of the voice-over narrations and 65% of the on-camera actors. Of the 35% of commercials that featured females on-camera, 54% percent also included male voice-over narrations to augment the female personas.

Many producers believe that men's words and opinions are more listened to, valued, and respected than are women's (Bluhm, 1982; Johnson, 1987; Preisser, 1988). These attitudes are steeped in many western Judaic and Christian cultural traditions (Tan, 1981; Borisoff and Merrill, 1985; Edelstein et al, 1989).

Cultural Stereotypes

According to Duberman (1975), to internalize means to adopt the standards of one's society as part of one's self image, so the attitudes and behaviors approved by the society appear to have no possible alternatives. De Beauvoir (in Borisoff and Merrill, 1985, p. 13) explains

that masculine values and behavior have been regarded as the desirable human norm, while feminine values and behavior has been regarded as peculiar and abnormal. De Beauvoir (1952) wrote that men [people] describe the world from their own point of view, which they confuse with the absolute truth. It is from this truth that our internalized masculine and feminine stereotypes have evolved.

To internalize a stereotypical view of women and men as communicators results in the male's resistance to identifying the limitations and the expansion of their role and the exclusion or subjugation of the females. We have in effect, limited the professional growth of males, while eliminating females, a majority of the Earth's population, from contending for positions as communicators. According to Borisoff and Merrill (1985),

> In western societies, men have been reared to confront, to compete, to challenge, and to win; women have been taught to acquiesce, to accommodate and to compromise. When placed within the framework of communication, this gender-linked behavior leads males to gravitate towards delivering organized public speeches and debates, while women are encouraged to mediate and to listen. ... Males have been taught to be logical, objective and impersonal; while women have been encouraged to be subjective, self-disclosing and personal. Always,

> however, the 'masculine' traits have been afforded greater status (p. 12).
>
> The models of femininity and masculinity that we have internalized have been with us for centuries. Now, at the close of the twentieth century, it has become apparent to many that a rigid adherence to sex role stereotypes is a disadvantage (p 16.).

According to Christopher (1977) the major networks have discovered that women can deliver the news as credibly as men. Bluhm (1982) reports that the decision to begin to incorporate women into the broadcasting field was a result of three factors. The three factors are: (a) the efforts of feminine activists of the late 1960's, (b) Federal equal employment legislation, and (c) the perceptions of broadcasters of how the demands for change would affect their business and their public image. Society is slowly changing it's male/female prejudices and roles related preconceptions (Colley and Hargreaves, 1986).

Research studies on the role of instructor gender in adult learning.

Three studies related to the role of instructor gender in adult learning were found to be of interest. Gaebelein and Gruber (1979) studied sex differences in listening comprehension. They found that when a male speaks he is

listened to more carefully, and content recall was greater, than when a female speaks. This was true for both female and male subjects. They attributed these differences to sex-role stereotyping. According to Gaebelein and Gruber (1979), "... the notion of sex-role stereotyping implies that women are not supposed to be as competent as men ... , thus it hardly seems surprising that male speakers would be listened to more closely that female speakers..." (p. 308).

Pearson (1980) studied the effects of narrator gender on conceptual learning of specific nursing skills. She found that there were no significant differences in learning between groups viewing male or female narrators. She concluded that the gender of the narrator has a negligible influence on learning.

Chiddix, Gilbert, and Lee (1981) examined the influence of presenter's gender on students' evaluations of presenters discussing sex fairness in counseling. They found that the topics presented by men were not rated as being more important than topics presented by women. Yet, female presenters received lower ratings, on an affective scale, than did male presenters. They also found that there was a significant three-way interaction between subject gender, instructor gender and content area. The male instructor was rated higher, by both male and female subjects, on both male related and female related subject matters. The researchers

concluded that male instructors are perceived as having higher expertise, and trustworthiness. They concluded that, "... a women's sex status may create enough noise to drown out what she has to say" (p. 263).

In summary, gender-based stereotypes are manifested through communicative behaviors. While barriers to effective communications still exist, Borisoff and Merrill (1985) report that they are becoming less powerful. Also, that, "... although the traditional male mode of behavior has been generally considered stronger and more effective, neither masculine nor feminine communicative acts are inherently better or worse; stronger or weaker. Rather, it is the interpretation that has been placed upon these respective styles that has led people to value one over the other; to reward certain behaviors and punish others" (Borisoff and Merrill, 1985, p. 94).

It is apparent from the literature that while strides are being made to overcome gender related biases and stereotypes a great many of these prejudices still remain. The research on the role of instructor gender and it's effect on adult learning is conflicting and inconclusive.

Research Studies on the Role of Instructor Expressivity in Adult Learning

Perry and Magnusson (1987) report that, "... a high-expressive instructor can generate significant achievement gains over a low-expressive instructor" (p. 453). A direct positive influence upon student motivation and achievement is well documented (Abrami, Leventhal, and Perry, 1982). Instructor expressivity encourages selective student attention and fosters the storage and retrieval of achievement related cognitive material.

Expressivity is a relative term. What is high expressive behavior to one person may be considered low expressive behavior to another person (Johnson, Stockard, and Williams, 1987). Many variables contribute to a definition of expressivity. Facial expressions, body movement, and vocal inflection, pacing, pitch, and volume all contribute to expressive behavior (Eagly, 1987; Gill et al, 1987; Shimanoff, 1988; Blier and Blier-Wilson, 1989). If the first thing that a student notices about an instructor is their gender, the second is their voice (Wolfram, 1974; Trudgill, 1975, 1983; and Labov, 1980).

According to Borisoff and Merrill (1985), "Articulation comes from the Latin word for joint. It refers to the joining together of the organs of articulation (for example, lips, tongue, teeth, glottis, etc.) so as to chop the breath

stream into individual sounds. All speakers do not produce and pronounce speech sounds in the same way" (pp. 19-20). Numerous studies (Wolfram, 1974; Trudgill, 1975, 1983; and Labov, 1980) have established that women are more likely to use standard grammatical forms of language than men. Women tend to be more articulate. Trudgill (1975) offers two explanations. He believes that because women within each social strata are subordinate to men, they must, "secure and signal their status linguistically" (p. 91). Second, since less formal, more working-class pronunciation is associated with toughness and masculinity, women are encouraged to talk like, 'ladies'.

Women's voices are generally of a higher pitch than men's. While physiological and hormonal effects account for some of this difference, studies (Sachs, Lieberman and Erickson, 1978; Mattingly, 1991) have shown that many males and females may be adjusting their pitch to fit cultural expectations and stereotypes. Women (and men) who assume a high pitched vocal sound are perceived as giddy and childish and are neither taken seriously, nor held to be credible. Who can forget the first time they heard Truman Capote speak?

Borisoff and Merrill (1985) report that, "For many years women were denied access to careers in broadcasting on the pretext that the higher-pitched female voice did not

sound serious enough" (p. 22). We have grown considerably from the time when the only female voices heard on the nightly news was that of the "weather girl." Interestingly enough, when broadcast weather predictions became more scientific, in many instances, the "weather girl" was replaced by a male meteorologist. "We still regard the lower-pitched male voice as the voice of authority" (Borisoff and Merrill, 1985, p. 22).

Speakers are also judged by the intonation or inflection of their voice. Intonation refers to the pitch swings or changes within a word, a phrase, or a sentence (Borisoff and Merrill, 1985). Brend (1975) found that females tend to use upward inflections that serve to request confirmation from listeners. Men are inclined to end words and phrases at a low pitch. As a result, a phrase uttered by a women will tend to sound like a request. The same phrase uttered by a man gives the impression of a command.

Other verbal and non-verbal constructs contribute to the barriers that prevent effective communications between and among men and women. According to Borisoff and Merrill (1985) the connotation that certain words and categories of words carry evoke stereotypical gender based (biased) reactions. Specific phrases are thought of as feminine or masculine. Ending declarative sentences with a question, a qualifier, or a disclaimer, vocabulary differences, compound

wording of sentences, interruptions and control of the topic in discussions are examples of verbal behavior that tends to reinforce the stereotypical roles of each sex.

Non-verbal communications factors are physical space (how close individuals stand to one another when speaking), height, touch, facial expression, and eye contact. According to Borisoff and Merrill (1985), "In all cases, the behaviors that have been designated as stereotypically female are ... considered less powerful than the conventional male forms" (p.41).

Studies (Goffman, 1959; Eakins and Eakins, 1978; Giles and St. Clair, 1979; Giles and St. Clair, 1980; and Putnam, 1983) indicate that men do not listen effectively to less powerful segments of the population; for example, the poor, the aged, children, and women. Borrisoff and Merrill (1985) report that the stereotypical feminine speaker is soft spoken, self-effacing, and compliant. More emotional than logical, she is prone to be perceived as disorganized and subjective. According to political scientist Nannerl O. Keohane, (1981) "... when women do speak, their speech sounds strange. It deviates from the norm of masculinity in timbre and in pattern... And the words of women are constantly devalued in group settings, not heard, assumed to be trivial, not attended to." (pp. 91-92).

The emergence of women as vital members of network and local broadcast news teams has done much to dispel the general public's prejudices about the credibility of women on television (Bluhm, 1982; Borisoff and Merrill, 1985). Yet, research (Chiddix et al, 1981; Basow and Distenfeld, 1985; Borisoff and Merrill, 1985; Blier and Blier-Wilson, 1989) continues to indicate the deep-seeded nature of these prejudices.

Summary

Increasingly, corporate America is finding it necessary to train its employees in remedial and basic skills. The United States Office of Technology Assessment (1988) reported that, to an ever increasing degree, workers will be faced with the prospect of operating a computer. Whether self employed, or working for a small, medium, or large organization, most adults will have to achieve some level of competency in micro or mainframe computer use. There is a need for effective ways to train adults in basic computer skills. Studies have shown that instructional television is an effective means of teaching competency based skills (Chu and Schramm, 1967; Gagné, 1987). It is for this reason that the subject matter selected for the training videotape was basic computer skills.

The use of video based instruction in the work place is rapidly increasing. Video producers and instructional

designers have traditionally paid little or no attention to the instructional effects of on-screen instructor gender. Very little experimental research has been done on the effects of on-screen instructor gender and expressivity upon video based learning.

Hundreds of studies have been done on the design, production, costing, effectiveness and uses of educational and instructional television (Schramm, 1977). However, only three studies (Pearson, 1980; Chiddix et al, 1981; Basow and Distenfield, 1985) have been located on the effect of the influence of an on-screen video presenter's gender on learning. All of this research was done with undergraduate college students as subjects. None of these studies address the effect of the on-screen instructor on adult learning of basic cognitive skills.

Pearson (1980) compared the effects of sex stereotyping and non-sex stereotyping in the use of narrators for instructional videotape materials designed for nursing students (n=80). She controlled all variables but the gender of the narrator. No effects on learning were found using male and female voices.

A central question to everyone involved in the design, production, and delivery of video-based adult learning is, how can designers of instructional video programs maximize the transfer of learning that occurs through this medium?

It is the mission of designers of training and producers of instructional television programs to communicate knowledge, skills, and attitudes to their audiences. An essential ingredient to the success of any media intervention is the on-screen or voice-over talent. Producers of instructional video tapes often expend a great deal of time, energy and money selecting talent. While many factors influence the selection of this person few are based upon the educational research into the field.

Therefore, the objective of this study is to determine the effect of an on-screen instructor gender and expressivity upon adult learning of basic skills from an instructional videotape.

CHAPTER III

METHOD

The general purpose of this study was to determine the effect of on-screen video instructor gender and expressivity upon the learning of basic computer skills, by a group of adults in an employment training center. This chapter describes the method of study implemented for this research, including the design of the study, the population/sample, the instrument/data collection procedures, and the methods of analysis.

Design

Using a quasi experimental design and a 2 x 3 factorial analysis the effect of on-screen instructor gender and expressivity was measured and analyzed. A post hoc descriptive analysis of the effects of the organismic variables (Campbell and Stanley in Borg and Gall, 1983, p. 697) of student gender, student ethnicity (as measured by their first language), student reading level, student's prior experience with computers, student attitude toward computers, and the time it took to take the exam was also conducted.

Setting and Study Sample

This study was conducted at the Arlington County Virginia Employment Training Center (ETC), located at the Arlington Career Center, 816 South Walter Reed Drive,

Arlington, Virginia. The ETC provides employment training for disadvantaged adults who reside in Arlington county. The ETC operates on an open entry/open exit basis. Students complete training when they demonstrate mastery of the job skill competencies required by the Virginia Vocational Education Department and when they are able to obtain a job. Appendix A (page 151) provides a more detailed description of the Center.

Students in the ETC program must be Arlington residents who are disadvantaged, underemployed, or unemployed. Disadvantaged is defined by the county as adults who meet the U.S. Department of Labor's Office of Management and Budget poverty level guidelines (see Appendix A, page 152). Due to Arlington County's diverse ethnic and racial mix of residents, students come from a wide range of cultures.

There are currently 160 adults enrolled in the four programs offered. The average student age is 29. Thirty-four percent are Hispanic, 27% are Asian, 15% are Black, and 9% are white. Fifteen percent did not list their race on their form. Eighteen percent are male and 82% are female. Fifty-seven percent are considered to be limited speakers of English. This population represents an ever increasing proportion of employees in the work place.

Students are trained for employment in clerical jobs, electrical trades, the printing industry, and as child care

aides. All students being trained in clerical skills must take two units of instruction on computers. The first is "Introduction to Personal Computers." The second is "Computer Office Applications: Data Base and Spreadsheet Programs." Students must pass each unit with at least an 80% level of accuracy. They may take as long as is needed to learn these skills. Appendix B (page 153) provides a detailed list of the competency based skills taught to each student.

The videotaped lesson was based upon unit number one, the "Introduction to Personal Computers." Every ETC student required to take computer instruction from May 1991 though August 1991 was asked to participate in the study. A total of 128 students participated in the study. Because students enrolled in the ETC program are grateful for the training opportunities, a high degree of voluntary participation was achieved. Only four people refused to take part in the study.

The use of competency based video instruction and measures of student performance minimized the effects of limited language proficiency of some subjects upon the results of the study. Video-based instruction relies heavily on aural and non-written visual learning modalities, thus making it easier for students with limited language proficiency to learn (Thomas and Kobayashi, 1987, O'Connor,

1898). Competency based learning generates instructional objectives that are concrete, obvious to the learner, and easily tested and consistent with theories of adult learning (Schramm, 1977; Knowles, 1980; Gagné, 1987).

Each of the ETC's subject's language proficiency, is measured by the Test Of Adult Basic Education (TABE) and the Basic English Skills Test (BEST). TABE measures student's vocabulary, reading and math levels. The BEST battery is used as a measure of verbal language skills. In this way the effect of subject's English language proficiency on test scores was recorded and analyzed as an organismic variable.

Variables

The first independent variable was instructor gender; male or female. The second variable was instructor expressivity, depicted in three levels. The first was low expressive, the second average expressive, and last was high expressive (see Table 1). Expressivity was defined, and depicted to the actors, by the director, as the ability of the actors to incorporate distinct hand gestures, smiles, varied vocal inflection, pacing, and modulation, animated facial gestures, and fitting head and body movements. When performing in a non-expressive way the on-screen instructors were devoid of these vocal and physical affectations. When performing in an average expressive way the on-screen instructors were directed toward a median

Table 1.

Factorial Design of Independent Variables of On-Screen Instructor Gender and Expressivity Shown as an Unweighted Analysis of Variance

	EXPRESSIVITY			
GENDER	Low	Average	High	Mean
Male	n=	n=	n=	n=
Female	n=	n=	n=	n=
Mean	n=	n=	n=	n=

level of expressivity between the high and low levels of these vocal and physical dramatizations.

The dependent variable was student learning of competency based computer skills, as measured by a 20 question computer administered multiple choice exam (see Appendix D, page 169). In addition, information on the potential mediating variables of student gender, student ethnicity (as measured by their first language), student reading level, student's prior experience with computers, student attitude toward computers, and the time it took to take the exam were collected. This data was collected by the same computer administered instrument used for the cognitive measure of learning. Twenty multiple choice questions were used to gather demographic and attitudinal data on the students (see Appendix E, page 173).

Levels of expressivity represent relative measures of continuous intervals. Therefore, students were asked to respond to five questions that revealed measures of their perception of the expressivity of the instructor in the videotape that they viewed. This allowed correlation of my definition of high, low, and average expressivity with the student's definition of expressivity. These five measures (see Appendix D, questions 14-18, on page 171) were collapsed into one variable; referred to as students' perception of instructor expressivity.

To determine subjects' prior level of computer experience they were asked to report on their previous time working with computers in formal instruction, in informal instruction, or in self instruction. The survey questioned them on their casual access to computers, and their attitude towards computers. These question sought to find a baseline of students' basic computer operational skills.

In summary, the dependent variable in this study was student learning. The independent variables were:

1. on-screen instructor gender
2. on-screen instructor expressivity
3. the interaction between on-screen instructor gender and expressivity
4. student perception of on-screen instructor expressivity
5. subject gender
6. subject ethnicity, as measured by the subject's first language
7. the time it took for subjects to take the exam
8. the subject's reading level
9. the subject's prior experience working with computers
10. the subject's access to a personal computer
11. the subject's attitude towards working with computers

12. the subject's attitude towards learning computer skills from a videotaped lesson

A post-test only design controlled for pre-test sensitization. The treatments (the videotapes) taught performance skills. Therefore, a criterion referenced, competency based, test was given as the measure of students learning. Using the medium of videotape for the treatment helped to control for language as a possible confounding variable. As stated earlier, video-based instruction relies heavily on aural and non-written visual learning modalities, thus making it easier for students with limited language proficiency to learn (Thomas and Kobayashi, 1987, O'Connor, 1898). Competency based learning generates instructional objectives that are concrete, obvious to the learner, and easily tested and consistent with theories of adult learning (Schramm, 1977; Knowles, 1980; Gagné, 1987).

Instruments

A 20 question multiple choice exam was used to evaluate the subjects level of learning. The instrument is found in Appendix E, page 173. The exam was written by the subject matter expert, C Thomas Crabtree; the script writer, Michele Bajek; and the researcher, Arnold Meyrow. The instrument consisted of 20 competency based, multiple choice questions that were directly based upon the information presented in the videotape.

Content Validity.

The exam was inspected for content validity by six computer experts, including two data processing teachers, two computer specialists (users), and two computer teaching supervisors. Content validity was scrutinized by conducting an objective comparison of the test items with the curriculum content. Content validity was further checked by asking five computer instructors and five computer users to identify the objectives being addressed by each of the questions. Their responses correlated highly (r=.79) with the table of specifications developed for the exam (see Appendix H, on page 177).

Criterion-related validity

Validity was checked by running a correlation of the test scores on this instrument with students' scores on a clerical skills test (see Appendix H, A Test on The Use of The Typewriter, page 181). This provided a similar measure of competency based skills. The two sets of scores correlated highly (r=.82).

Reliability

Chronbach's Alpha was used to check for the internal consistency of the exam. The Chronbach's Alpha (.13) was extremely low. This was thought to be the result of the fact that this was a criterion referenced instrument that

measured many different, distinct sets of information and skills presented in the videotape.

Readability

A readability level was calculated using the computer software program entitled RightWriter Version 4.0 (Que Software, 1990). This indicated that the instrument was, overall, on a fifth grade, seven month reading level.

Procedure

As an introduction to basic computer skills, groups of approximately eight to ten adult students of clerical skills at the Arlington Employment Training Center were each shown, as their first learning experience in their computer laboratory training, one of six videotapes on basic computer skills. These tapes were identical in every way except that the on-screen instructor in three of the tapes was a male acting respectively in a low, average, and high expressive manner. In three other tapes the on-screen instructor was a female acting in a low, average and high expressive manner. As the scripts were identical for all tapes, the audio text heard and the video seen was the same for each program. These tapes were typical of the type of instructional tapes used by government agencies, schools, and corporations to train adults.

Using a computer algorithm, a random order for showing the tape was established. After a tape was shown to a

group, it dropped to the bottom of the rotation. Each tape was shown, in order, until at least 20 subjects were in each of the six groups (cells). For statistical analysis, eight scores were randomly discarded in order to make each of the cells equal. A total of 120 subjects were used.

Preparation of the Treatment

The researcher produced the six videotapes used in the study. They were produced at the television facilities of the Arlington Career Center, Arlington, Virginia. The tapes were shot on 3/4" and High 8mm videotape. The tapes were edited onto 3/4" videotape. Michele Bajek, a professional script writer who specializes in writing technical training videos, wrote the script. The script was edited and approved by the subject matter expert and teacher of the computer class, C Thomas Crabtree.

Selection of the on-screen instructors.

To insure the typicality of the on-screen talent eight actors, four male and four female, were videotaped reading two minutes of the proposed script. They read from a telepromptor. A panel of eight video producers, instructional designers, and computer instructors viewed the tapes. They chose one male and one female actor to appear as the on-screen instructors in the videotapes. On a scale of one through seven, they rated the actors on five criteria (see Appendix F, page 179). The criteria were typicality,

expressivity, credibility, attractiveness, and ability to communicate the content. In order to provide a commonality of definition for each of the criteria headings (i.e. typicality, expressivity, credibility, attractiveness, and ability to communicate the content) each rating form provided a specific definition next to each criterion. A score of one indicated the lowest rating, seven the highest. The judges' ratings of each actor on each of the criteria was summed. The actor and actress receiving the highest point scores were chosen as the on-screen talent.

In addition to using the rating scale, each judge was asked to choose the one male and the one female that they would pick as the person for the job. They were asked to briefly state their reasons for their choice. These responses were used to correlate the objective rating scale results with the affective choices of the judges. This served as a check on the panel's decisions and on whether the five criteria chosen as the objective measures were appropriate assessors of the talent's appeal to this panel of judges. The affective choices correlated exactly ($r=1.0$) with the rating scales of each evaluator. A consensus of some of the reasons judges gave for their choices were: authoritative, easy to listen to, communicates well, clear, concise, easy to follow, phrasing on key words, in control of the information, understandable, great tempo, expressive

motions, the best teacher, good pacing, sensitive, friendly, energetic, enthusiastic, liked his gestures, was forceful, seemed most knowledgeable, and confident.

The panel functioned as a control for researcher bias in the selection of the on-screen talent. It also provided the verbs used in writing the five affective questions that measured the students perception of the instructors expressivity. After the talent was chosen, the tapes were produced.

Shooting and editing the tapes.

The on-screen instructors were taped in a studio location. The technical equipment, lighting, sound, dress, setting, and director-to-talent instructions were identical for both the female and the male actors in all tapings. The two instructors were very similar in dress. They were, in all ways possible, "typical," in looks, dress, demeanor, and voice quality, of the type of people used by commercial producers of instructional videotapes. They were professional actors dressed in business attire. The man wore a dark blue sport coat, a light blue shirt and red tie. The woman wore a dark blue blazer, a light blue blouse, and a red scarf. In order to set a base-line of expressivity the first taping, for both the female and the male, was the average expressive deportment. The second was the high expressive and the last was the low expressive performance.

To impart distinct levels of expressivity the actors, under my direction, varied the degree and frequency of which they incorporated hand gestures, smiles, vocal inflection, varied vocal pacing, varied vocal modulation, facial expressivity, head movements, and physical movement. The talent was on camera throughout much of the tape. Close-up shots of the talent were interspersed with shots of the computer, keyboard, and the monitor as dictated by the video script (see Appendix C, page 160). The instructor's voices were heard during the entire tape. Music was edited into the beginning and end of the tapes. Segments of the tapes were separated by musical and visual bridges. Titles and graphics were used throughout the tapes to support the instruction. With the exception of the voice narration and the shots that show the gender and the expressivity of the actors, the six tapes were identical.

Validation of the tapes.

To insure that the levels of expressivity between the six videotapes were indeed distinguishable from one another a panel of six adults were asked to watch the same two minute segment from each of the tapes. Using a survey form (see Appendix G, page 176) each rater judged the tapes on the same five attitudinal measures of expressivity used in the experimental instrument. An analysis of variance showed six discrete groups of interaction between gender and

expressivity (F=7.15, p=.0002). All six rater groups correlated exactly (r=1.0) with the actual six treatment videotapes.

Administration of the treatment

Each treatment group was assembled in the ETC computer classroom. Students were assigned to report to the Computer Lab as they became available for computer training within the normal ETC scheduling process. The Clerical Skills teachers kept a record of who had participated in the study. Each student was seated at a personal computer equipped with a monitor, a keyboard, a 5¼" 360K floppy drive, and a hard disk drive. This configuration is typical of the systems used extensively in both homes and offices throughout the country. The videotape was shown to the class on a large monitor situated in front of the classroom. The tape was played back on a VHS video recorder located under the TV screen. The researcher operated the VCR and monitored the instructional process. At key points in the videotape students were instructed, via the tape, to practice the skills being presented. At the end of the tape the on-screen instructor directed the student to load the test instrument into the computer. This initiated a testing procedure that was administered by the computer. The students were first asked for demographic information about themselves (see Appendix D, page 169). Information on

student gender, student ethnicity (as measured by their first language), student reading level, student's prior experience with computers, student attitude toward computers, and the videotape viewed were collected. Students were then asked to respond to a 20 item multiple choice exam (see Appendix E, page 173) on the information presented in the tape.

Student's responses to the instrument were recorded on individual 5¼" floppy disks. The computer also kept track of the time students began and finished the exam. After the examination, each disk was collected and marked as to the date, time, computer used, and tape viewed. At the end of the day student test results were downloaded onto a single disk for later analysis. Information on student English proficiency was obtained from the Employment Training Center's data base. This information was used as a measure of student's reading level and was expressed in years and months.

Confidentiality was maintained throughout the data collection process. All computer disks (records) were handled by either C Thomas Crabtree (the course instructor), or myself. Students only had access to the disks while they were in a supervised classroom situation. Any floppy computer disks were handed out prior to the administration of the treatment and collected right after the test was

completed. All original disks and the back-ups were kept under lock and key when not in use.

Pilot Study

A pilot study was conducted on a group of 16 adults. It took place two weeks prior to the administration of the full study. The pilot study field-tested the technical aspects of the study while producing a preliminary set of numbers for statistical analysis.

Over a three day period, two of the tapes were shown to two groups of adult students. There were nine students in the first group and seven in the second group. The first group viewed the high expressive female. The second group viewed the low expressive male. The experiment was conducted as it would be for the full study. Data was collected and analyzed.

As a result of the pilot study the procedures for administering the treatment were adjusted as reflected in the procedures outlined above. There were no other changes made to the study as a consequence of the pilot study.

Analyses

The primary research questions addressed were:

1. What is the effect of on-screen video instructor gender upon the learning of basic computer skills by adults?

2. What is the effect of on-screen video instructor expressivity upon the learning of basic computer skills by adults?
3. What is the effect of the interaction between on-screen instructor gender and on-screen instructor expressivity upon the learning of basic computer skills from a videotaped lesson?

The results of this study provided data on the effect of on-screen instructor gender and expressivity upon learning. The dependent variable of interest is the score that students obtained on the test administered after viewing the instructional videotapes. The six group means on the test were compared using analysis of variance. A multiple regression analysis was run on all of the variables. An additional analysis of variance was conducted on the group means using the student's perceptions of the expressivity of the on-screen instructors. The three levels of low, average, and high expressivity were determined by first averaging students responses to five affective measures of expressivity. This average score was then reported as a separate variable called 'EXPRESS2C'. This variable was then rank ordered and equally divided into thirds.

Descriptive profiles were constructed based on the six organismic mediating variables. They were student gender, ethnicity (as measured by students first language), student reading level, student's prior experience with computers, student attitude toward computers, and the time it took to take the exam. English proficiency information was obtained from the Employment Training Center records. The relationship between student's English proficiency and student's scores on the test were examined to determine if English proficiency needs to be considered as a covariate.

Summary

This chapter described the method of study implemented for this research, including the design of the study, the population/sample, the instrument/data collection procedures, and the methods of analysis.

CHAPTER IV

RESULTS

The findings presented in this chapter are the results of the statistical analyses of the effects of on-screen video instructor gender and expressivity upon the learning of basic computer skills, by a group of adults in an employment training center, from a locally produced instructional videotape.

Groups were compared using analyses of variance and multiple regression analysis. All statistical procedures were performed utilizing the Number Cruncher Statistical System (Hintze, 1990).

Setting/Subjects

The Employment Training Center (ETC) located at the Arlington Career Center, Arlington, Virginia provided the setting for this study. The ETC program provides employment training for unemployed or under employed adults who reside in Arlington County. Students enrolled in the Clerical Skills program from May to August 1991 were used as the subjects in this study. A total of 128 students participated in the study.

In order to keep the six cells equal in size for statistical analysis, the scores of eight subjects, in the appropriate cells, were randomly discarded. These two changes did not effect the results of the study.

Findings

The analyses of variance indicated no significant main effects for instructor gender or expressivity. No significant effects were found for the interaction between instructor gender and expressivity. However, when on-screen instructor expressivity, as measured by the students, was substituted for expressivity as defined by the research design, a significant interaction between instructor gender and expressivity was indicated (see Table 9, page 79).

In addition, two organismic variables, student gender and first language showed statistical significance (see Table 12, page 86, and Table 13, page 88, respectively). The following sections describe the analysis that led to these findings.

Research Question #1

Research question one determines if student scores on a 20 question competency-based exam were significantly different based on the gender of the on-screen instructor. Research question one was stated:

> What is the effect of on-screen video instructor gender upon the learning of basic computer skills, by adults, from a videotaped lesson?

The null hypothesis used to test research question one was:

> On-screen video instructor gender has no effect upon the learning of basic computer skills, by adults, from a videotaped lesson.

To test this hypothesis an analysis of variance was performed on the means of each group. A summary of the results of this analysis of variance is presented in Table 2. The mean for the group viewing the male on-screen instructor was 67.25 (n=60), while the mean for the group who viewed the female was 66.42 (n=60, F=.06, p=.81). There was little difference between the group means. Therefore, no conclusions on the effect of the on-screen instructor gender may be drawn from this analysis and the null hypothesis may not be rejected.

Research Question #2

Research question two was designed to determine if student scores on a 20 question competency-based exam were significantly different based on the expressivity (at three levels of expressivity, low, average, and high) of the on-screen instructor.

Research question two was stated:

> What is the effect of on-screen video instructor expressivity upon the learning of basic computer skills, by adults, from a videotaped lesson?

Table 2.

Group Mean Scores (Expressed in Percent Correct) as a Function of On-Screen Instructor Gender (SD=26.07)

Analysis of Variance (ANOVA) Report
Response Variable: COGSCORE

SOURCE	DF	SUM-SQUARE	MEAN SQUARE	F-RATIO	PROB > F
Instructor Gender	**1**	**20.83**	**20.83**	**.06**	**.8045**
Instructor Expressivity	2	10.42	5.21	.02	.9847
Instructor Gender and Expressivity	2	167.92	83.96	.25	.7808
Error	114	38597.50	338.58		
Total	119	38796.66			

Group Mean Scores

GENDER	MEAN
Male	67.25 n=60
Female	66.42 n=60

The null hypothesis used to test research question two was:

> The expressivity of an on-screen video instructor has no effect upon the learning of basic computer skills, by adults, from a videotaped lesson.

To test this hypothesis an analysis of variance was performed on the means of each group. A summary of the results of this analysis of variance is presented in Table 3. The mean for the group viewing the low expressive on-screen instructor was 67.25 (n=40). The mean for the group viewing the average expressive instructor was 66.63 (n=40). The mean for the group who viewed the high expressive instructor was also 66.63 (n=40). While there was little difference between the three group means, the p value (F=.02, p=.99) was so high that these scores may have been result of pure chance. Therefore, no conclusions on the effect of on-screen instructor expressivity may be drawn from this analysis and the null hypothesis may not be rejected.

Because expressivity is a relative term, as reported in Chapter III, on page 55, the levels of expressivity were validated by a panel of adults. An analysis of variance showed six discrete groups of interaction between gender and expressivity (F=7.15, p=.0002). All six rater groups correlated exactly (r=1.0) with the actual six treatment

Table 3.

Group Mean Scores (Expressed in Percent Correct) as a Function of On-Screen Instructor Expressivity (SD=31.88)

Analysis of Variance (ANOVA) Report
Response Variable: COGSCORE

SOURCE	DF	SUM-SQUARE	MEAN SQUARE	F-RATIO	PROB > F
Instructor Gender	1	20.83	20.83	.06	.8045
Instructor Expressivity	**2**	**10.42**	**5.21**	**.02**	**.9847**
Instructor Gender and Expressivity	2	167.92	83.96	.25	.7808
Error	114	38597.50	338.58		
Total	119	38796.66			

Group Mean Scores

EXPRESSIVITY	MEAN
Low	67.25 n=40
Average	66.63 n=40
High	66.63 n=40

videotapes. However, when a one way analysis of variance was run using the research design definition of expressivity as the independent variable and the student's measure of instructor expressivity as the dependent variable no significance was found between these two variables ($F=.45$, $p=.64$). A correlation report found there to be no relationship between the two variables ($r=.07$). It was apparent the two variables represented very different measures of expressivity.

As result of this finding, the measure of the students' perception of instructor expressivity was used in place of the design variable of instructor expressivity. When this was performed, a significant finding on the interaction of the main effect variables was observed.

Research Question #3

Research question three was designed to determine if student scores on a 20 question competency-based exam were significantly different based on the interaction between on-screen instructor gender and expressivity. Research question three was stated:

> What is the effect of the interaction between on-screen instructor gender and on-screen instructor expressivity upon the learning of basic computer skills, by adults, from a videotaped lesson?

The null hypothesis used to test research question three was:

> The interaction between on-screen video instructor gender and expressivity has no effect upon the learning of basic computer skills, by adults, from a videotaped lesson.

To test this hypothesis an analysis of variance was performed on the means of each group. A summary of the results of this analysis of variance is presented in Table 4. As shown in Table 4, the mean for the groups viewing the low expressive male was 66.59 (n=20) and the low expressive female was 65.55 (n=20). The mean for the groups viewing the average expressive male was 69.99 (n=20) and the average expressive female were 67.01 (n=20).

Table 4.

Group Mean Scores (Expressed in Percent Coorrect) as a Function of On-Screen Instructor Gender and Expressivity shown as an UnWeighted Analysis of Variance (SD=45.13)

Analysis of Variance (ANOVA) Report
Response Variable: COGSCORE

SOURCE	DF	SUM-SQUARE	MEAN SQUARE	F-RATIO	PROB > F
Instructor Gender	1	20.83	20.83	.06	.8045
Instructor Expressivity	2	10.42	5.21	.02	.9847
Instructor Gender and Expressivity	**2**	**167.92**	**83.96**	**.25**	**.7808**
Error	114	38597.50	338.58		
Total	119	38796.66			

Group Mean Scores

	EXPRESSIVITY		
GENDER	Low	Average	High
Male	66.00 n=20	67.75 n=20	68.00 n=20
Female	68.50 n=20	65.50 n=20	65.25 n=20

Finally, the mean for the groups who viewed the high expressive male was 69.63 (n=20), while the high female was 62.18 (n=20). The p value indicates that the differences in these scores (F=.25, p=.78) may be the result of pure chance. Therefore, no conclusions on the effect of the on-screen instructor expressivity may be drawn from this analysis and the null hypothesis may not be rejected.

Additional Analysis of the Independent Variables

In order to identify and isolate the effects and interactions of the variables, further study of the data collected was conducted using correlational and multiple regression analysis, one way analyses of variance, two way analyses of variance, and analyses of covariance.

Correlation and Multiple Regression Analysis

A correlation analysis was conducted on all of the variables that contained interval data (see Table 5, page 71). The variables that correlated highly with students cognitive scores were entered into a multiple regression analysis. They were student reading level (r=.67) and test time (r=.54). As Table 6, on page 72, shows three variables were found to be useful predictors of success on the cognitive exam. They were reading level (r^2=.45, p=.00), test time (r^2=.29, p=.04), and prior experience with computers (r^2=.22, p=.00).

Table 5.

Correlations

	READLEVL	TESTTIME	ENGLISH2	PCEXPER3	EXPRESSV
READLEVL	1.0000	-0.5751	0.5331	0.3556	-0.0045
TESTTIME	-0.5751	1.0000	-0.4784	-0.3234	0.0768
ENGLISH2	0.5331	-0.4784	1.0000	0.2596	-0.4161
PCEXPER3	0.3556	-0.3234	0.2596	1.0000	-0.0371
EXPRESSV	-0.0045	0.0768	-0.4161	-0.0371	1.0000
INSTGNDR	0.1202	0.0108	-0.0541	0.0500	0.0017
TAPEVWED	-0.0160	0.0309	-0.1326	-0.0612	0.0412
COGSCORE	0.6739	-0.5417	0.4337	0.4711	0.0564

	INSTGNDR	TAPEVWED	COGSCORE
READLEVL	0.1202	-0.0160	0.6739
TESTTIME	0.0108	0.0309	-0.5417
ENGLISH2	-0.0541	-0.1326	0.4337
PCEXPER3	0.0500	-0.0612	0.4711
EXPRESSV	0.0017	0.0685	0.0681
INSTGNDR	1.0000	0.0000	-0.0232
TAPEVWED	0.0000	1.0000	-0.0142
COGSCORE	-0.0232	-0.0142	1.0000

READLEVL = Subjects' reading level
TESTTIME = Time it took subjects to take the exam
ENGLISH2 = First language as English
PCEXPER3 = PC experience
EXPRESSV = Subjects' rating of instructor expressivity
INSTGNDR = Instructor gender
TAPEVWED = Instructor expressivity (as defined by the research design)
COGSCORE = Score on the exam

Table 6.
Multiple Regression Report

VARIABLE	SEQ r^2	r^2	P VALUE
READLEVL	.4541	.4541	.0000
TESTTIME	.4896	.2935	.0371
ENGLISH2	.4915	.1881	.2457
PCEXPER3	.5395	.2219	.0005
EXPRESSV	.5539	.0046	.0732
INSTGNDR	.5655	.0005	.1683
TAPEVWED	.5658	.0002	.7509

READLEVL = Subject's reading level
TESTTIME = Time it took subjects to take the exam
ENGLISH2 = First language as English
PCEXPERI = PC experience
EXPRESS4 = Subjects' rating of instructor expressivity
INSTGNDR = Instructor gender
TAPEVWED = Instructor expressivity (as defined by the research design)
COGSCORE = Score on the exam

One Way Analysis of Variance - Student Ethnicity (as Measured by First language)

Because reading level and test time are related to language skills, an analysis of variance was run on first language by students. The variable used for this measure was called Student Ethnicity (as measured by first language).

As shown in Table 7, on page 74, there was a significant difference (F=9.85, p=.00) between the four language groups. The group who spoke English scored highest on the exam (78.51, n=37), while the group of Asians speakers scored the lowest (56.33, n=30), a difference of 22.18 points. The group whose first language was Spanish (62.44, n=45) scored 16.07 points lower that the English speaking group. The group that reported their first language as 'Other' (76.86, n=8) had too few subjects in their group to obtain significant results from their scores. These findings indicated a strong relationship between language spoken and success on the exam.

To check if one gender happened to have higher reading levels than the other, a one-way analysis of variance was run using student gender as the independent variable and reading level as the dependent variable. The results of this analysis showed that there was no significant difference (F=.01, p=.90).

Table 7.

Group Mean Scores (Expressed in Percent Correct) as a Function of Students' First language (SD=28.04)

Analysis of Variance (ANOVA) Report

Response Variable: COGSCORE

SOURCE	DF	SUM-SQUARE	MEAN SQUARE	F-RATIO	PROB > F
Student Language	**3**	**7179.04**	**2393.02**	**9.85**	**.0000**
Instructor Gender	1	261.88	261.88	1.08	.3014
Student Language and Instructor Gender	3	1220.65	406.88	1.68	.1764
Error	112	27205.11	242.90		
Total	119	38796.66			

Group Mean Scores

SOURCE	MEAN
English	78.51 n=37
Spanish	62.44 n=45
Asian	56.33 n=30
Other	76.88 n=8

Because of the strong relationships shown in Tables 5, 6, and 7, between language skills and success on the exam, analyses of variance were rerun on the research questions using student reading level as a covariate.

Analysis of covariance

The analysis of covariance, as shown in Table 8, page 76, shows larger differences in group means and a .23 point decrease in the p value. However, the p value (p=.55, F=.61) was still too high. Therefore, there were no significant main effect or interaction results when adjusted for reading level. For that reason, no conclusions on the effect of the on-screen instructor gender or expressivity may be drawn from this analysis. Each unweighted analysis was compared to the covaried analyses. The differences in the scores were not sufficient enough to continue to report these analyses using reading level as a covariate.

Table 8.

Group Mean Scores (Expressed in Percent Correct) as a Function of On-Screen Instructor Gender and Expressivity Covaried with Student Reading Level (SD=32.89)

Analysis of Covariance (ANCOVA) Report

Response Variable: COGSCORE

SOURCE	DF	SUM-SQUARE	MEAN SQUARE	F-RATIO	PROB > F
Instructor Gender	1	436.26	436.26	2.42	.1226
Instructor Expressivity	2	165.38	82.69	.46	.6332
Instructor Gender and Expressivity	**2**	**219.66**	**109.83**	**.61**	**.5455**
Error	113	20367.37	180.24		
Total	119	38796.66			

Group Mean Scores

	EXPRESSIVITY			
GENDER	Low	Average	High	Mean
Male	66.59 n=20	69.99 n=20	69.63 n=20	68.75 n=60
Female	65.55 n=20	67.01 n=20	62.18 n=20	64.91 n=60
Mean	66.07 n=40	68.50 n=40	65.93 n=40	66.83 n=120

Analysis of Variance Using Student's Perception of Expressivity

The test instrument solicited five attitudinal responses to measures of the student's perception of the instructor's expressivity. A reliability analysis was run on these five measures (Chronbach's alpha=.80). The mean of the student's responses to these five measures were used as a separate variable and substituted for the researchers definition of the three levels of expressivity. An analysis of variance was rerun for the two main effect independent variables and the interaction between them.

Research Questions One and Two

As shown in Table 9, on page 79, when the student's perception of expressivity was substituted for the researchers definition of expressivity, the p values on both instructor gender (F=.00, p=.95) and instructor expressivity (F=1.65, p=.20) alone were still too high to precipitate any conclusions about the impact of these two variables on students exam scores. Therefore, for research questions one and two, any differences in these means may be the result of pure chance and no conclusions may be derived on the effect of the on-screen instructor's expressivity on learning from this analysis.

Research Question Three

When on-screen instructor expressivity, as measured by the students, was substituted for expressivity as defined by the researcher, the data, as reported in Table 9, page 79, did indicate p values low enough ($F=3.75$, $p=.03$), on the interaction between instructor gender and expressivity, to yield statistically significant conclusions.

Therefore, the null hypothesis may be rejected ($p<.05$) and it may be concluded that the interaction between on-screen video instructor gender and expressivity, as rated by the students, has an effect upon the learning of basic computer skills by adults. Table 9, on page 79, shows that the highest mean score (74.47, n=19) was reported by the group who viewed the average expressive female. The lowest mean (56.96, n=23) was recorded by the group that viewed the low expressive female. The low expressive male (n=23) and the high expressive female (n=18) groups had identical means (70.00). The average and high expressive male groups showed means of 67.27 (n=11) and 64.81 (n=26) respectively.

Analysis of Variance Using Student's Perception of Expressivity at Two Levels of Expressivity

As no discernable pattern or trend seems to be evident in these scores, the three levels of student rating of expressivity were collapsed into two tiers, one high, the other low. As shown in Table 10 on page 81, the interaction

Table 9.

Group Mean Scores (Expressed in Percent Correct) as a Function of On-Screen Instructor Gender and Expressivity (at Three Levels), As Perceived (Rated) by Subjects (SD=17.49)

Analysis of Variance (ANOVA) Report

Response Variable: COGSCORE

SOURCE	DF	SUM-SQUARE	MEAN SQUARE	F-RATIO	PROB > F
Instructor Gender	1	1.30	1.30	.00	.9481
Expressivity (as Rated by Students)	2	1012.37	506.18	1.65	.1962
Instructor Gender and Expressivity	**2**	**2300.10**	**1150.05**	**3.75**	**.0264**
Error	114	34923.91	306.35		
Total	119	38796.66			

Group Mean Scores

	EXPRESSIVITY			
GENDER	Low	Average	High	Mean
Male	70.00 n=23	67.27 n=11	64.81 n=26	67.25 n=60
Female	56.96 n=23	74.47 n=19	70.00 n=18	66.42 n=60
Mean	63.48 n=46	71.83 n=30	66.93 n=44	66.83 n=120

Scores By Rank Order (High to Low)

Female Average - 74.47	Male Average - 67.27
Female High - 70.00	Male High - 64.81
Male Low - 70.00	Female Low - 56.96

is statistically significant (F=5.17, p=.03). The highest mean (70.43, n=35) was recorded by the group who viewed the high expressive female. However, the next closest mean (70.19, n=27) was only .24 percentage points away. It was achieved by the group who viewed the low expressive male.

Figure 3, on page 82, depicts the differences between the four groups. As seen both in Table 10 and Figure 3, there is very little difference between the groups who viewed the high expressive female and the low expressive male. The group that viewed the low expressive female (60.80, n=25) scored 9.63 percentage points lower than the group that viewed the high expressive female (70.43, n=35). The low expressive male group (70.19, n=27) scored 4.34 percentage points higher than the high expressive male group (64.85, n=33). The high expressive female group (70.43, n=35) scored 5.58 points above the high expressive male group (64.85, n=33). Yet, the low expressive female group (60.80, n=25) scored 9.39 points lower than the low expressive male group (70.19, n=27).

The results indicate that students scored highest on the exam when viewing the male instructor acting in a low expressive manner and when viewing the female instructor acting in a high expressive manner

Table 10.

Group Mean Scores (Expressed in Percent Correct) as a Function of On-Screen Instructor Gender and Two Levels of Expressivity, As Perceived (Rated) by Subjects (SD=17.81)

Analysis of Variance (ANOVA) Report

Response Variable: COGSCORE

SOURCE	DF	SUM-SQUARE	MEAN SQUARE	F-RATIO	PROB > F
Instructor Gender	1	106.53	106.53	.33	.5644
Instructor Expressivity	1	135.53	135.53	.24	.5158
Instructor Gender and Expressivity	1	1647.83	1647.83	5.17	.0249
Error	116	37000.89	318.97		
Total	119	38796.66			

Group Mean Scores

	EXPRESSIVITY			
GENDER	Low	High	Mean	Diff
Male	70.19 n=27	64.85 n=33	67.25 n=60	5.34
Female	60.80 n=25	70.43 n=35	66.42 n=60	-9.63
Mean	65.67 n=52	67.72 n=68	66.83 n=120	
Diff	9.39	-5.58		

Scores By Rank Order (High to Low)

Female High - 70.43 Male High - 64.85
Male Low - 70.19 Female Low - 60.80

GROUP	LOW EXPRESSIVE	HIGH EXPRESSIVE	COMBINED
Male Instructor	70.19 n=27	64.85 n=33	67.25 n=60
Female Instructor	60.80 n=25	70.43 n=35	66.42 n=60
Combined	65.67 n=52	67.72 n=68	66.83 n=120

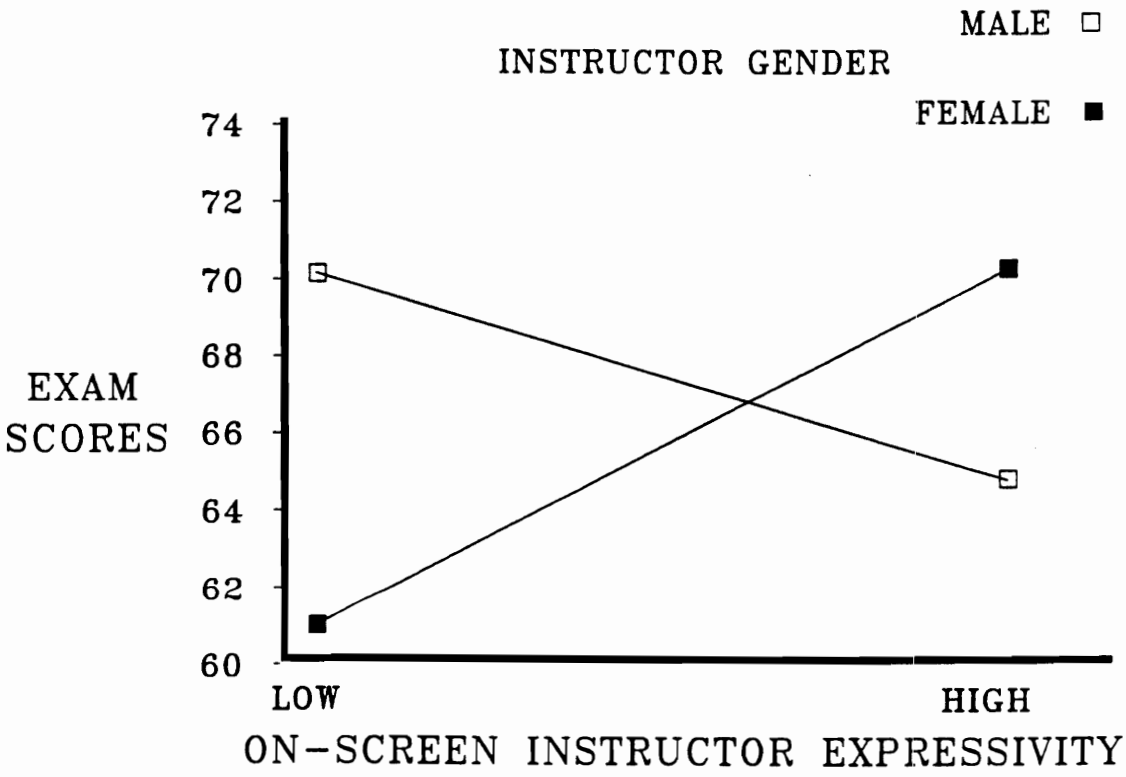

Figure 3.

The Effect of On-Screen Instructor Gender and Expressivity on the Exam Scores of Students, As Perceived (Rated) by Subjects

It may be concluded that there is no significant difference ($p<.05$) in the learning of basic computer skills between the groups of adults who viewed the low expressive male or the high expressive female on-screen instructor.

Expressivity is apparently a relative term. Even though a panel of experts confirmed the levels of expressivity of the videotapes defined in the experiment ($F=7.15$, $p=.0002$), the student ratings of expressivity had more relevance for the statistical analysis.

Descriptive Analyses of the Organismic Variables

This section examines the effect of on-screen instructor gender and expressivity on six variables that related to the subjects in the study. These six variables were student gender, student ethnicity (as measured by their first language), student reading level, student's prior experience with computers, student attitude toward computers, and the time it took them to take the exam.

Instructor Gender and Expressivity as Related to Student Gender

A total of 92 women and 28 men participated in this study. In many cases cell sizes were insufficient to draw conclusions from this analysis. As shown in Table 11, on page 85, the main effects did not result in significance. Only the interaction between the student gender and instructor gender showed significance ($F=3.83$, $p=.05$). Neither the interactions between student gender nor instructor gender revealed significant results. As shown in Table 12, on page 86, the mean score for the men was 68.39 ($n=28$). The men in this study scored the highest (88.75, $n=4$) when they viewed the high expressive female and lowest (59.17, $n=6$) when they viewed the high expressive male. The mean score for the women in the study was 66.36 ($n=92$). The women scored highest (71.79, $n=14$) when they viewed the high expressive male and lowest (59.38, $n=16$) when they viewed the high expressive female. As an additional check, a one way analysis of variance was run using only subject gender as the independent variable. Once again, no significance was found ($F=.27$, $p=.60$).

The relationship of scores associated with the male/female and female/male interaction led to a post hoc analysis that isolated the gender variables.

Table 11.

Analysis of Variance (ANOVA) Report for Instructor Gender, Instructor Expressivity, and Student Gender

Response Variable: COGSCORE

SOURCE	DF	SUM-SQUARE	MEAN SQUARE	F-RATIO	PROB > F
Instructor Gender	1	137.08	137.08	.44	.5101
Expressivity	1	649.08	649.08	2.07	.1533
Instructor Gender and Expressivity	1	1114.52	1114.52	3.55	.0621
Subject Gender	1	91.45	91.45	.29	.5905
Instructor Gender and Subject Gender	**1**	**1203.81**	**1203.81**	**3.83**	**.0527**
Expressivity and Subject Gender	1	584.29	584.29	1.86	.1752
Instructor Gender, Expressivity and Subject Gender	1	3.64	3.64	.01	.9145
Error	112	35164.05	313.97		
Total	119	38796.66			

Table 12.

Mean Scores of Students (Expressed in Percent Correct) by Treatment Groups and by Potential Mediating Variables - Subject Gender (SD=13.44)

	MEAN SCORES BY MEDIATING VARIABLES	
TREATMENT GROUPS	Subject Gender Male	Subject Gender Female
Low Expressive Male	61.67 n=3	66.77 n=17
Low Expressive Female	68.33 n=3	68.53 n=17
Average Expressive Male	70.00 n=5	67.00 n=15
Average Expressive Female	66.43 n=7	65.00 n=13
High Expressive Male	59.17 n=6	71.79 n=14
High Expressive Female	88.75 n=4	59.38 n=16
Total Mean	68.39 n=28 SD=13.44	66.36 n=92 SD=13.43

Student Gender and Instructor Gender

When student gender was analyzed against on-screen instructor gender, statistical significance (F=4.56, p=.04) was established. Table 13, on page 88, and Figure 4 on page 89, indicates that the group mean of the males who viewed the female on-screen instructor (73.21, n=14) were 9.64 percentage points higher than the group of men that viewed the male on-screen instructor (63.57, n=14). The group mean of the females who viewed the male on-screen instructor (68.37, n=46) were higher (4.8 percentage points) than the group mean of the females that view the female on-screen instructor (64.35, n=46).

The results demonstrate that these groups of men and women learned more from the opposite gendered on-screen instructors.

Table 13.

Group Mean Scores (Expressed in Percent Correct) as a Function of On-Screen Instructor Gender and Student Gender (SD=17.99)

SOURCE	DF	SUM-SQUARE	MEAN-SQUARE	F-RATIO	PROG > F
Instructor Gender	1	27.44	27.44	.12	.7309
Student Gender	1	247.10	247.10	1.07	.3033
Instructor Gender and Student Gender	1	1051.54	1051.54	4.56	.0352
Error	116	37000.89	318.97		
Total	119	38796.66			

	INSTRUCTOR GENDER			
STUDENT GENDER	Male	Female	Mean	Diff
Male	63.57 n=14	73.21 n=14	68.39 n=28	-9.64
Female	68.37 n=46	64.35 n=46	66.36 n=92	4.02
Mean	67.25 n=60	66.42 n=60	66.83 n=120	
Diff.	-4.8	8.86		

GROUP	MALE INSTRUCTOR	FEMALE INSTRUCTOR	COMBINED
Male Students	63.75 n=14	73.21 n=14	68.39 n=28
Female Students	68.37 n=46	64.35 n=46	66.36 n=92
Combined	67.25 n=60	66.42 n=60	66.83 n=120

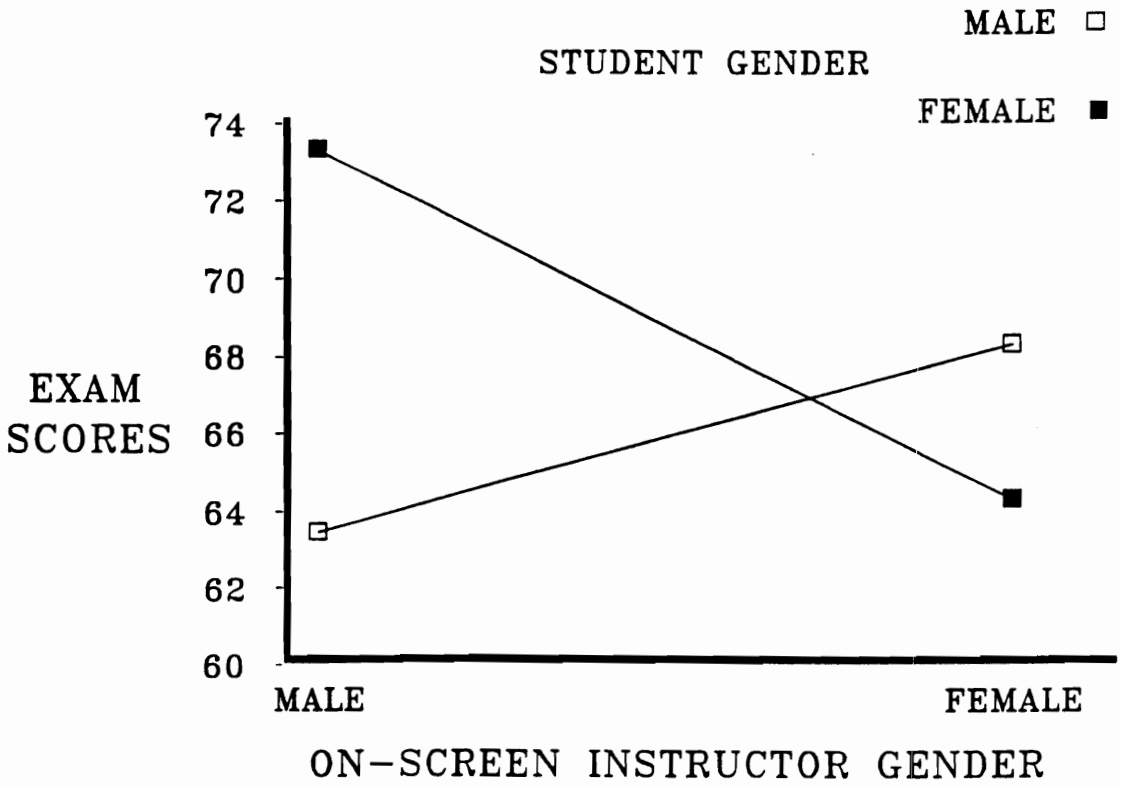

Figure 4.

The Effect of On-Screen Instructor Gender on the Exam Scores of Students by Student Gender

Student Ethnicity (as Measured by First Language Spoken)

In this study 37 subjects (31%) indicated English as their first language, 45 (38%) indicated Spanish as their first language, 30 (25%) spoke some form of an Asian language (either Chinese, Viet Namese, or Cambodian), and eight (6%) signified that they spoke some language other than these three categories. Cells sizes were too small to test the main effect variables. A one-way analysis of variance was run on student ethnicity, as measured by first language. As presented in Table 14, on page 91, language proved to be a significant variable ($F=13.48$, $p=.00$).

Language spoken - English.

As shown in Table 14, on page 91, the mean for the English speaking group was 78.51 (n=37). The highest group mean (86.25, n=4) was achieved by the viewers of the average expressive female, with the lowest mean (72.00, n=5) being scored by the high expressive female group.

Language spoken - Spanish.

Table 14, on page 91, displays the mean for the Spanish speaking group as 62.45 (n=45), with the highest group mean (66.67, n=6) being achieved by the viewers of the average expressive female. The group viewing the low expressive male had the lowest group mean (54.44, n=9) for the Spanish speakers.

Table 14.

Mean Scores of Students by Treatment Groups and by Potential Mediating Variables - Ethnicity (as Measured by First language) (SD=13.22)

Analysis of Variance (ANOVA) Report

Response Variable: COGSCORE

SOURCE	DF	SUM-SQUARE	MEAN-SQUARE	F-RATIO	PROG > F
Language	3	10028.77	3342.92	13.48	.0000
Error	116	28767.90	247.99		
Total	119	38796.66			

	MEAN SCORES BY MEDIATING VARIABLES			
TREATMENT GROUPS	Language Spoken: (English) p=.73	Language Spoken: (Spanish) p=.67	Language Spoken: (Asian) p=.80	Language Spoken: (Other) p=.97
Low Expressive Male	77.00 n=10	54.44 n=9	60.00 n=1	0 n=0
Low Expressive Female	83.13 n=8	65.63 n=8	46.67 n=3	40.00 n=1
Avg Expressive Male	80.00 n=3	64.29 n=7	62.50 n=8	82.50 n=2
Avg Expressive Female	86.25 n=4	66.67 n=6	55.00 n=6	70.00 n=1
High Express. Male	75.00 n=7	63.33 n=6	60.83 n=6	90.00 n=1
High Express. Female	72.00 n=5	62.78 n=9	43.33 n=3	83.33 n=3
Total Mean	78.51 n=37	62.44 n=45	56.33 n=30	76.88 n=8

Language spoken - Asian.

As shown in Table 14, on page 91, the mean for the Asian speaking group was 56.33 (n=30, F=.23), with the highest group mean (62.50, n=8) being achieved by the viewers of the average expressive male. The group viewing the high expressive female had the lowest group mean (43.33, n=3) for the Asian speakers.

Language spoken - 'Other'.

As shown in Table 14, on page 91, there were not enough numbers in the cells to obtain meaningful results.

Many cultural biases are tied to gender related issues (Duberman, 1975; Borisoff and Merrill, 1985). To get a better view of the effect of on-screen instructor gender on the group scores, expressivity was removed from the investigation. The analysis was rerun using only on-screen instructor gender and language as variables. When this was done, significance was found (F=3.18, p=.03).

As shown in Table 15, on pages 93, 94 and 93, 94 and in Figure 5, on page 95, both the English (80.59, n=17) and Spanish (64.79, n=23) speaking groups scored higher when taught by a female, while the Asian (61.67, n=15) and the 'Others' (85.00, n=3) group scored higher when taught by a male on-screen instructor. Language alone proved to be a very good predictor of success (F=6.78, p=.00).

Table 15.

Analysis of Variance (ANOVA) Report for Ethnicity (as Measured by First language) (SD=15.57)

Response Variable: COGSCORE

SOURCE	DF	SUM-SQUARE	MEAN-SQUARE	F-RATIO	PROG > F
Instructor Gender	1	27.44	27.44	.12	.7309
Language	**3**	**4695.65**	**1565.22**	**6.78**	**.0003**
Language and Instructor Gender	**3**	**2205.33**	**735.11**	**3.18**	**.0270**
Subject Gender	1	247.10	247.10	1.07	.3033
Instructor and Subject Gender	**1**	**1051.54**	**1051.54**	**4.56**	**.0352**
Language and Subject Gender	3	636.07	212.02	.92	.4347
Language, Instructor, and Subject Gender	3	933.74	311.25	1.35	.2629
Error	104	24008.76	230.85		
Total	119	38796.66			

Table 15 (continued).

Mean Scores of Students by Instructor Gender and by Potential Mediating Variables - First language (SD=15.57)

	MEAN SCORES BY MEDIATING VARIABLES			
INSTRUCTOR GENDER	Language Spoken: (English)	Language Spoken: (Spanish)	Language Spoken: (Asian)	Language Spoken: (Other)
Male	76.75 n=20	60.00 n=22	61.67 n=15	85.00 n=3
Female	80.59 n=17	64.79 n=23	51.00 n=15	72.00 n=5
Total Mean	78.51 n=37	62.45 n=45	56.33 n=30	70.69 n=8

	MEAN SCORES BY MEDIATING VARIABLES			
INSTRUCTOR GENDER	Language Spoken: (English)	Language Spoken: (Spanish)	Language Spoken: (Asian)	Language Spoken: (Other)
Male	76.75 n=20	60.00 n=22	61.67 n=15	85.00 n=3
Female	80.59 n=17	64.79 n=23	51.00 n=15	72.00 n=5
Total Mean	78.51 n=37	62.45 n=45	56.33 n=30	70.69 n=8

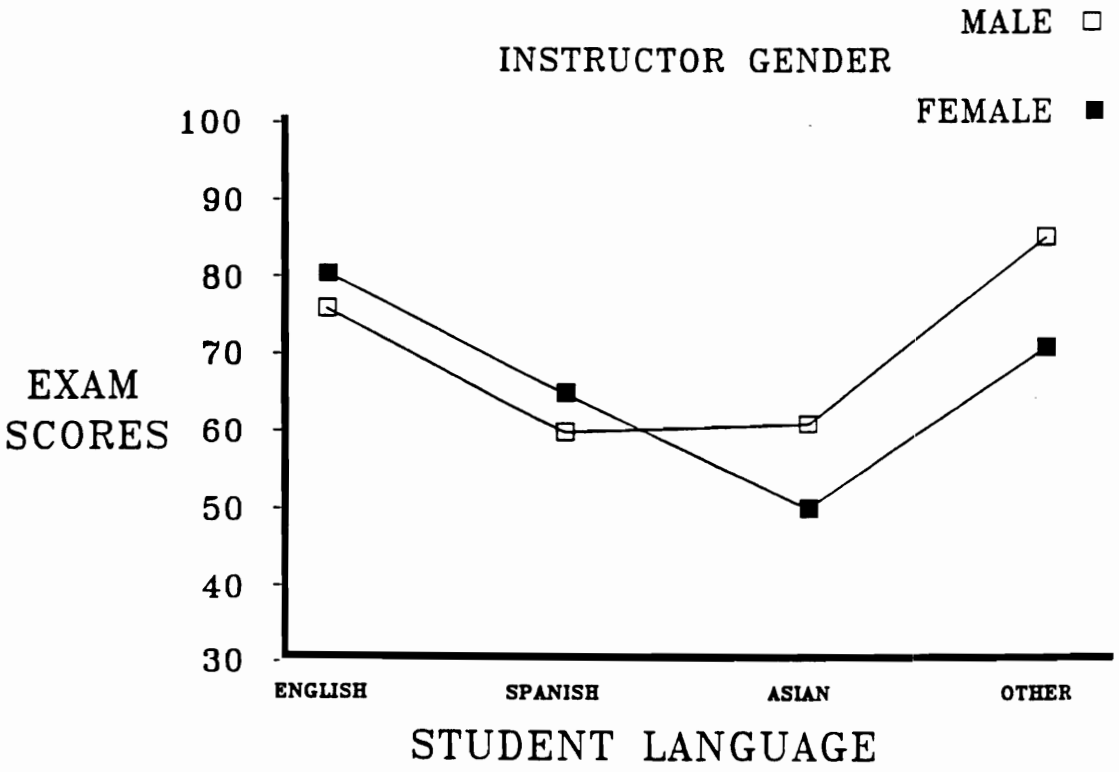

Figure 5.

The Effect of On-Screen Instructor Gender and Student Ethnicity (as Measured by Student's First Language) on Learning

Post hoc Comparison

Scheffe's multiple comparison test was used to determine exactly where the significant differences between the four language groups existed. The results are shown in Table 16, on page 97. The significant differences (p=.05) occurred between the English, the Spanish, and the Asian groups and between the 'Other' and the Asian group.

Subject Reading Level

Table 17, on page 98, displays the analysis of variance report for instructor gender, instructor expressivity, and student reading level (at three levels, high, average, and low). Significance was only reported for student reading level (F=42.69, p=.00). The breakdown of reading levels by treatment groups is reported in Table 18, on page 99. The group of students with reading levels of seven years, five months and above scored highest (82.11, n=38) on the exam. Students with a reading level between the fourth grade and seventh grade, fourth month scored in the middle range (64.52, n=52), while students with reading levels below the fourth grade scored the lowest on the exam (51.50, n=30). The p (F=.58, p=.57) values were too high to determine statistical significance from these scores. However, as reported in Tables 17 and 18, on pages 98, and 99 respectively, significant differences were found between the three levels of reading groups (F=41.92, p=.0000).

Table 16.

Scheffe's Test of Multiple Comparisons of Ethnicity (as Measured by First language) (p=.05)

LANGUAGE	MEAN	LEVEL CODES A B C D
A (Asian)	56.33	. . S S
B (Spanish)	62.44	. . . S
C (Other)	76.88	S . . .
D (English)	78.51	S S . .

The means of the levels of the selected languages are sorted and listed. The smallest is given the code A, the next B, and so on. Each row of the report ends with a dot and S's. An S indicates that this mean is significantly different from the level whose code it is above.

Table 17.

Analysis of Variance (ANOVA) Report for Instructor Gender, Instructor Expressivity, and Student Reading Level (at Three Levels, High, Average, and Low)

Response Variable: COGSCORE

SOURCE	DF	SUM-SQUARE	MEAN SQUARE	F-RATIO	PROB > F
Instructor Gender	1	534.82	534.82	2.72	.1024
Expressivity	2	223.97	111.98	.57	.5679
Instructor Gender and Expressivity	2	242.59	121.30	.62	.5420
Subject Reading Level	**2**	**16806.56**	**8403.28**	**42.69**	**.0000**
Instructor Gender and Subject Reading Level	2	296.84	148.42	.75	.4731
Expressivity and Subject Reading Level	4	656.00	164.00	.83	.5072
Instructor Gender, Expressivity and Subject Reading Level	4	572.72	143.18	.73	.5753
Error	102	20078.90	196.85		
Total	119	38796.66			

Table 18.

Mean Scores of Students by Treatment Groups and by Potential Mediating Variables - Reading Level (SD=13.57)

	MEAN SCORES BY MEDIATING VARIABLES		
TREATMENT GROUPS	Reading Level Low (0-3.9) (p=.57)	Reading Level Avg (4.0-7.4) (p=.36)	Reading Level High (7.5-13.0) (p=.58)
Low Expressive Male	50.00 n=4	61.00 n=10	85.00 n=6
Low Expressive Female	42.00 n=5	65.00 n=5	83.50 n=10
Average Expressive Male	54.29 n=7	71.67 n=9	82.50 n=4
Average Expressive Female	51.43 n=7	61.43 n=7	86.67 n=6
High Expressive Male	63.75 n=4	64.58 n=12	82.50 n=4
High Expressive Female	46.67 n=3	63.33 n=9	74.38 n=8
Total Mean	**51.50 n=30**	**64.52 n=52**	**82.11 n=38**

The group with the highest reading level (82.11, n=38) scored 30.61 points higher than the group with the lowest reading levels (51.50, n=30). The group with the average reading level (64.52, n=52) scored 17.59 points lower than the high group and 10.02 points higher than the group with the lowest reading level.

Scheffe's test was run to find where the significant differences were between the groups. Table 19, on page 101, indicates that there was significant differences (p=.05) between all of the groups.

Prior Computer Experience

Due to the presence of empty cells, a full analysis of variance could not be run on the main effect variables. A one-way analysis of variance was run on the student's prior levels of computer experience. As shown in Table 20, on page 102, the these scores were significant (F=5.54, p=.005). Table 20, on page 102, also displays the three group means classified by student's prior experience with computers. The group of students who had ten or more hours of experience scored highest (75.73, n=41) on the exam. Students who had between five and nine hours experience with computers scored in the middle range (62.82, n=39), while students with less than five hours experience scored only slightly below the middle group (61.23, n=40).

Table 19.

Scheffe's Test of Multiple Comparisons of Students' Reading Levels (p=.05)

READING LEVELS	MEAN	LEVEL CODES A B C
A (Low)	51.50	. S S
B (Average)	64.52	S . S
C (High)	82.11	S S .

The means of the levels of the selected languages are sorted and listed. The smallest is given the code A, the next B, and so on. Each row of the report ends with a dot and S's. An S indicates that this mean is significantly different from the level whose code it is above.

Table 20.

Mean Scores of Students by Treatment Groups and by Potential Mediating Variables - PC Experience (SD=12.40)

SOURCE	DF	SUM-SQUARE	MEAN-SQUARE	F-RATIO	PROG > F
PC Experience	**2**	**3354.61**	**1677.30**	**5.54**	**.0050**
Error	117	35442.06	302.92		
Total	119	38796.66			

	MEAN SCORES BY MEDIATING VARIABLES		
TREATMENT GROUPS	PC Experience: Low (0-4 Hrs)	PC Experience: Avg (5-9 Hrs)	PC Experience: High (10+ Hrs)
Total Mean	61.23 n=40	62.82 n=39	75.73 n=41

Time Spent Taking the Exam

As shown in Table 21, on page 104, these scores were neither significant for the main effect variables, nor the for the interaction between them. However, there was significance found (F=21.79, p=.00) for just the effect of time spent taking the exam. Table 22, on page 105, displays the six group means separated by the time it took students to take the exam (test instrument). The group of students who took less than 18 minutes to take the exam scored the highest (80.52, n=29) on the exam. This was a full 13.23 points above the middle group. This middle group of students, who took between 19 and 24 minutes to take the exam, scored 67.29, n=48, while students who took more that 24 minutes to take the exam scored 10.2 points below the middle group (57.09, n=43).

Scheffe's test was run to find where the significant differences were between the groups. Table 23, on page 106, indicates that there was significant differences (p=.05) between all of the groups.

Table 21.

Analysis of Variance (ANOVA) Report for Instructor Gender, Instructor Expressivity, and Time Spent Taking the Exam

Response Variable: COGSCORE

SOURCE	DF	SUM-SQUARE	MEAN SQUARE	F-RATIO	PROB > F
Instructor Gender	1	59.91	59.91	.23	.6355
Expressivity	2	94.77	47.38	.18	.8366
Instructor Gender and Expressivity	2	1019.52	509.76	1.92	.1514
Test Time	**2**	**11551.39**	**5775.70**	**21.79**	**.0000**
Instructor Gender and Test Time	2	395.00	197.50	.75	.4773
Expressivity and Test Time	4	397.30	99.33	.37	.8262
Instructor Gender, Expressivity and Test Time	4	284.92	71.23	.27	.8975
Error	102	27038.47	265.08		
Total	119	38796.66			

Table 22.

Mean Scores of Students by Treatment Groups and by Potential Mediating Variables - Test Time (SD=12.81)

	MEAN SCORES BY MEDIATING VARIABLES		
TREATMENT GROUPS	Test Time: Low (0-18 Min)	Test Time: Avg (19-24 Min)	Test Time: High (25-60 Min)
Low Expressive Male	80.00 n=4	65.42 n=12	53.75 n=4
Low Expressive Female	92.00 n=5	67.50 n=6	56.11 n=9
Avg Expressive Male	76.00 n=5	70.00 n=7	60.63 n=8
Avg Expressive Female	83.75 n=4	66.25 n=8	55.63 n=8
High Expressive Male	83.33 n=3	70.00 n=7	62.00 n=10
High Expressive Female	73.75 n=8	66.25 n=8	46.25 n=4
Total Mean	80.52 n=29	67.29 n=48	57.09 n=43

Table 23.

Scheffe's Test of Multiple Comparisons of Students' Time Taking the Test (p=.05)

READING LEVELS	MEAN	LEVEL CODES A B C
A (Low)	80.52	. S S
B (Average)	67.29	S . S
C (High)	57.09	S S .

The means of the levels of the selected languages are sorted and listed. The smallest is given the code A, the next B, and so on. Each row of the report ends with a dot and S's. An S indicates that this mean is significantly different from the level whose code it is above.

Student Attitude Toward Computers

All students indicated a positive attitude towards working with computers. On a scale of one through seven, with one being, "I hate the idea and there is no way I can do this" to seven being "I am eager to begin, it's going to be great", the lowest group mean rating was 5.7 (the full question is listed in Appendix D on page 169). The lowest individual score was a four (n=8). For analysis purposes, students were divided into two attitudinal groups. Those who rated their attitude as, "I am really looking forward to it", were numerically rated as less than a raw score of six. Those who rated their attitude as, "I am eager to begin, it's going to be great", were numerically rated as equal to a raw score that was greater than six.

Table 24, on page 108, displays the six group means split by these two levels of student's attitude towards working with computers. In five of the six treatment groups, the students who were less eager to work with computers scored higher on the exam. The one exception was the group who viewed the high expressive female. The group that was most eager to work with PC's scored 4.21 points higher than the group that was simply really looking forward towards working with computers. However this difference may have been the result of a large disparity between the number of subjects in the two groups.

Table 24.

Mean Scores of Students by Treatment Groups and by Potential Mediating Variables - Student Attitudes Towards Computers

(SD=13.40)

SOURCE	DF	SUM-SQUARE	MEAN-SQUARE	F-RATIO	PROG > F
Attitude Towards Pcs	1	514.18	514.18	1.58	.2105
Error	118	38282.49	324.43		
Total	119	38796.67			

	STUDENT ATTITUDE TOWARDS WORKING WITH PCS	
TREATMENT GROUPS	Attitude Really Looking Forward	Attitude Eager to Begin
Low Expressive Male	71.88 n=8	62.08 n=12
Low Expressive Female	78.33 n=3	66.77 n=17
Avg Expressive Male	70.00 n=1	67.63 n=19
Avg Expressive Female	70.00 n=3	64.71 n=17
High Expressive Male	70.63 n=8	66.25 n=12
High Expressive Female	61.67 n=3	65.88 n=17
Total Mean	70.77 n=26	65.75 n=94

There were only three subjects in the lower group versus 17 subjects in the higher group. However, the p values (F=1.58, p=.21) were too high to draw any statistical significance from these scores.

Summary

This chapter has presented the analysis of the data and the findings. The primary focus of this study was addressed. The findings of this study showed that when expressivity, as defined by the researcher, was used in the analyses the p values were too high draw any conclusions on the three research question from this data. However, as shown in Table 9, on page 81, and Figure 3, on page 82, when expressivity, as delineated by the subjects, was used in the analysis significant relationships in the interaction between on-screen instructor gender and expressivity were found. The highest group mean was achieved by the students who viewed the average expressive female. The lowest mean was recorded by the group who viewed the low expressive female. There was no difference registered between the mean scores of the group that viewed the low expressive male and the high expressive female.

When the levels of expressivity were reduced, for analysis purposes, from three levels to just two levels a clearer pattern emerged. As Table 10 on page 81 shows, the group that viewed the high expressive female (70.43, n=35)

and the group that viewed the low expressive male (70.19, n=27) had only .24 percentage points difference between the group means. Therefore, there was no significant difference between the mean scores of the groups that viewed the high expressive female and the low expressive male.

Relationships between student organismic variables and the gender and expressivity of the on-screen instructor were also explored. Correlational analysis indicated that success on the exam was related to student reading levels, the time it took subjects to take the exam, and the language spoken by the subjects. Student ethnicity, as measured by first language, was a significant indicator of success on the exam.

When student gender was analyzed against on-screen instructor gender, statistical significance was also established. As Table 13, on page 88, and Figure 4 on page 89, indicate the males in the study who viewed the female on-screen instructor scored higher on the exam than the males who viewed the male on-screen instructor. The females in the study who viewed the male on-screen instructor scored higher on the exam than the females who viewed the female on-screen instructor.

Table 14, on page 91, show the resulting means, of the interaction between instructor gender and instructor expressivity (as defined by the researcher), filtered by

student ethnicity (as measured by first language), at the six treatment levels. The data clearly indicates that the groups who identified themselves as either speakers of English or some language other than Spanish or Asian scored much higher on the exam than did the Spanish or Asian groups.

Table 15, on page 93, and Figure 5, on page 95, shows the relationship between instructor gender and student ethnicity (as measured by first language). The group that viewed the female instructor and who identified themselves as being in the 'Other' category had the highest group mean. However, there were so few subjects in that cell that the relevance of this score is questionable. The next highest group mean was achieved by the English speakers who viewed the female instructor. The lowest mean was recorded by the Asians who viewed the female instructor. Within each ethnic group the English speakers seemed to learn equally well from either the male or the female instructor. There was only a 3.84% point difference between the two groups, with the higher score attained by the group that viewed the female instructor. While the Spanish speakers scored lower than the English speakers they also had but a 4.79% point difference between the two groups. Once again female instructor's group scored higher than the male's group. The Asians showed a 10.67% difference favoring the male

instructor. The group that viewed the male instructor and who marking 'Other' as their language scored 13% points higher than the group that viewed the female instructor.

Chi-Square Analyses

In an effort to discover why significance was found when the student definition of instructor expressivity was substituted for the design definition of instructor expressivity two chi-square analyses were performed. Two organismic variables, student gender and student ethnicity, were chosen as likely variables that might have contributed to these findings. They were chosen because they either were statistically significant variables or correlated highly with success on the exam.

A 2 x 2 chi-square analysis was performed investigating the effects of instructor expressivity and student gender. As shown in Table 25, on page 114, both male and female students rated the instructors equally on their expressivity (low expressive; female=43.5%, male=42.9% high expressive; female=56.5%, male=57.1%). The high p value (.9573) indicated that there was no significance to these findings.

A 2 x 4 chi-square analysis was performed investigating the effects of instructor expressivity and student ethnicity (as measured by first language). As shown in Table 26, on page 115, 50% of the subjects rating the instructors as low expressive spoke English as their first language. These

English speaking students represented 30.8% of the total sample. However, of those students who listed Spanish as their first language, 48.5% rated the instructors as being high expressive. These Spanish speakers represented 37.5% of the subjects. The Asian speaking students represented 25% of the population and were more evenly split (low=21.1%; high=27.9%) in their assessment of the expressivity of the instructors. The 'Other' group, which represented 6.7% of the subjects were also fairly evenly split (low=5.8%; high=7.4%). These results were significant (p=.0008). In summary, a majority of those students who reported Spanish as their first language felt that the instructors were high expressive, while a majority of those that listed English as their first language thought that the instructors were low expressive.

Table 27, on page 116, represents a summary of the significant findings. As shown in Table 27, they were: (a) the interaction between student defined instructor expressivity and instructor gender, (b) the interaction between instructor gender and student gender, (c) student ethnicity (as measured by first language), (d) the interaction between instructor gender and student ethnicity (as measured by first language), (e) student reading level, (f) student's prior experience with computers, and (g) the time it took students to take the exam.

Table 25.

2 x 2 Contingency Table for the Distribution of Values for On-Screen Instructor Expressivity by Student Gender

(x^2=.0034, df=1, p=.9537)

		EXPRESSIVITY		
		Low	High	Total
STUDENT GENDER	Female	40 43.5%	52 56.5%	92 100%
	Male	12 42.9%	16 57.1%	28 100%
	Total	52 43.3%	68 56.7%	120 100%

Table 26.

2 x 4 Contingency Table for the Distribution of Values for On-Screen Instructor Expressivity by Student Ethnicity (as Measured by First language) (x^2=16.68, df=3, p=.0008)

		EXPRESSIVITY		
		Low	High	Total
STUDENT ETHNICITY	English	26 50.0%	11 16.2%	37 30.8%
	Spanish	12 23.1%	33 48.5%	45 37.5%
	Asian	11 21.1%	19 27.9%	30 25.0%
	Other	3 5.8%	5 7.4%	8 6.7%
	Total	52 100%	68 100%	120 100%

Table 27.

Summary of the Findings of Significant Variables

VARIABLES	F	p	Table # Page #
Student Defined Instructor Expressivity x Instructor Gender	3.75	.03	Table 9 page 79 Table 10 page 81
Instructor Gender x Student Gender	4.56	.04	Table 13 page 88, 91
First Language as English (in a one-way ANOVA)	13.48	.00	Table 14 page 91, 93, 94
Language x Instructor Gender	9.58	.00	Table 15 page 93, 94
Student Reading Level	42.69	.00	Table 17 page 98
Prior Experience With Computers	5.54	.01	Table 20 page 102
Time it Took to Take the Exam	21.79	.00	Table 21 page 104

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to determine the influence of the gender and expressivity of an on-screen instructor, in an instructional video program, upon the learning of basic computer skills by adult students. The problem addressed in this study was to calculate the effect of on-screen video instructor gender and expressivity, and certain student related factors, upon the learning of basic computer skills.

The focus of the study was on the effect of two specific instructor related, and six student related variables upon student learning from an instructional videotape. The two instructor related variables were on-screen instructor gender and on-screen instructor expressivity. The six student related variables were: (a) student gender, (b) ethnicity (as measured by students first language), (c) student reading level, (d) student's prior experience with computers, (e) student attitude toward computers, and (f) the time it took to take the exam. The measure of learning (dependent variable) was a 20 question, computer administered, competency-based exam.

The study examined three primary research questions in order to analyze the problem. These questions were:

1. What is the effect of on-screen video instructor gender upon the learning of basic computer skills, by adults, from a videotaped lesson?
2. What is the effect of on-screen video instructor expressivity upon the learning of basic computer skills, by adults, from a videotaped lesson?
3. What is the effect of the interaction between on-screen instructor gender and on-screen instructor expressivity upon the learning of basic computer skills, by adults, from a videotaped lesson?

In addition correlational and descriptive analyses were used to exam the six organismic variables.

Setting

The Employment Training Center (ETC) located at the Arlington Career Center, Arlington, Virginia provided the setting for this study. The ETC program provides employment training for unemployed or under employed adults who reside in Arlington County, Virginia. Students enrolled in the Clerical Skills program from May to August 1991 were used as the subjects in this study. A total of 128 students participated in the study.

Due to student class scheduling the original design of the study had to be changed. Instead of using one tape for an entire week, the tapes had to be rotated after each class viewing. This change only impacted the logistics of the

administration of the treatment. In order to keep the six cells equal in size for statistical analysis, the scores of eight subjects, in the appropriate cells, were randomly discarded. These two changes did not effect the results of the study.

Procedure

Using a quasi experimental design and a 2 x 3 factorial analysis the effects of on-screen instructor gender and expressivity were measured and analyzed. A post hoc descriptive analysis of the effects of organismic variables was also conducted. Those organismic variables were: (a) student gender, (b) student ethnicity (as measured by their first language), (c) student reading level, (d) student's prior experience with computers, (e) student attitude toward computers, and (f) the time it took subjects to take the exam.

Groups of approximately eight to ten adult students in the ETC's clerical skills program viewed, as their first learning experience in their computer laboratory training, one of six videotapes on basic computer skills. These tapes were identical in every way except that the on-screen instructor in three of the tapes was a male acting respectively in a low, average, or high expressive manner. The other three tapes featured a female on-screen instructor acting in a low, average or high expressive fashion. The

scripts were identical for both tapes. Therefore, the audio heard was the same for each tape. These tapes were typical of the type of instructional tapes used by government agencies, schools, and corporations to train adults.

Each treatment group was assembled in the ETC computer classroom. Students were assigned to report to the Computer Lab as they became available for computer training within the normal ETC scheduling process. The Clerical Skills teachers kept a record of who had participated in the study. Each student was seated at a personal computer equipped with a monitor, a keyboard, a 5¼" 360K floppy drive, and a hard disk drive. This configuration is typical of the systems used extensively in both homes and offices throughout the country. The videotape was shown to the class on a large monitor situated in front of the classroom.

At the end of the tape the on-screen instructor directed students to run a computer program contained on a floppy disk that had been issued to each student at the beginning of the lesson. This initiated a testing procedure that was administered by the computer. The students were first asked for demographic information about themselves (see Appendix D, page 169). Information on student gender, student ethnicity (as measured by their first language), student reading level, student's prior experience with computers, student attitude toward computers, and the

videotape viewed were collected. Students were then asked to respond to a 20 item multiple choice exam on the information presented in the tape. Student's responses to the instrument were recorded their individual 5¼" floppy disk. The computer also kept track of the time students began and finished the exam. Information on student English proficiency was obtained from the ETC's data base. Statistical analyses were run on the data collected.

Summary of the Findings

Research Question #1

What is the effect of on-screen video instructor gender upon the learning of basic computer skills, by adults, from a videotaped lesson? No main effect could be statistically determined for this research question, as the question was stated. However, a significant interaction between instructor gender and student gender ($F=4.56$, $p=.04$) and between instructor gender and student ethnicity ($F=9.58$, $p=.00$) was found.

The Interaction Between Instructor Gender and Student Gender

When looking at the significant interaction between student gender and instructor gender it was determined that the male students who viewed the female instructor achieved higher scores on the exam than those male students who viewed the male instructor. It was also determined that the female students who viewed the male instructor achieved

higher scores on the exam than those female students who viewed the female instructor.

The Interaction Between Instructor Gender and Student Ethnicity (as Measured by First Language)

When looking at the significant interaction between instructor gender and student ethnicity it was established that the English speaking group who viewed the male scored 3.84 points lower than the English speaking group who viewed the female. The Spanish speaking group who viewed the male scored 4.79 points lower than the Spanish speaking group who viewed the female. The Asian speaking group who viewed the male scored 10.67 points higher than the Asian speaking group who viewed the female. The 'Other' group who viewed the male scored 13.00 points higher than the 'Other' group who viewed the female. Scheffe's test demonstrated that significant differences occurred between the English, the Spanish, and the Asian groups and between the 'Other' and the Asian group.

Research Question Number #2

What is the effect of on-screen video instructor expressivity upon the learning of basic computer skills, by adults, from a videotaped lesson? No main effect could be statistically determined for this research question, as the question was stated. However, the interaction between

student defined instructor expressivity and instructor gender did yield significant results ($F=3.75$, $p=.03$).

It was determined that there was no difference between the exam scores of the students who viewed the high expressive female and the students who viewed the low expressive male. The group who viewed the high expressive male scored 5.34 points lower than these two groups. The group with the low expressive female as their instructor had the lowest group mean. This score was 4.05 points below the high expressive male instructor's group and 9.39 points below the high expressive female and low expressive male.

Research Question #3

What is the effect of the interaction between on-screen instructor gender and on-screen instructor expressivity upon the learning of basic computer skills, by adults, from a videotaped lesson? No effects could be statistically determined for this research question as the question was stated.

However, as stated in research question #2 above, when expressivity, as determined by the subjects, was substituted for expressivity as defined in the research design, significant results were achieved.

Organismic Variables

When organismic variables were subjected to statistical analyses significance was found in six of the organismic

variables. As shown in Table 27, on page 116, they were: (a) the interaction between instructor gender and student gender, (b) student ethnicity (as measured by first language), (c) the interaction between instructor gender and student ethnicity (as measured by first language), (d) student reading level, (e) student's prior experience with computers, and (f) the time it took students to take the exam. Note that the first variable shown in Table 27 is not an organismic variable, but the interaction between two main effect variables.

Of the six organismic variables studied, only one, attitude towards computers, had a p value too high to yield significant results ($F=1.58$, $p=.21$).

Subjects' First Language, Reading Level, and Time Spent Taking the Exam

The reading level of the students proved to be the best predictor of success on the exam ($r=.67$, $F=42.69$, $p=.00$). The higher the reading level of the students, the higher the exam scores.

Two of the organismic variables also appear to be related to language skills. They are test time and first language. Reading level was highly correlated with test time ($r=-.58$) and language as English ($r=.53$). Test time accounted for some of the variance and was highly correlated to success on the exam ($r=-.54$). The less time spent on the

exam, the higher the student score. However, language by itself was not significant in the regression (r^2=.19, p=.25).

Prior Computer Experience

Students who had more experience with computers tended to do better on the exam (r=.47, F=5.54, p=.00).

Student Ethnicity (as Measured by First Language)

The language spoken by the student proved to be a factor in the success of students on the exam (r=.43, F=9.85, p=.00). Speakers of English attained the highest scores (78.51%). Students who spoke Asian languages scored the lowest on the exam (62.50%). The group mean of the Spanish speakers was 66.67%. There were too few subjects in the group who identified themselves as speakers of 'Other' languages to see any patterns between the variables that were measured.

Correlation/regression analysis.

Correlational analysis revealed a relationship between success on the exam and student reading levels, the time it took to take the exam, and the first language of the students. A multi-variate regression indicated that these three variables accounted for 57% of the total explained variation. Further, the time it took to take the exam, and the first language of the students correlated highly with student reading level. Since reading level showed the

largest r^2, an analysis of covariance was run using student reading level as a covariate. The p values were still too high to show significance of the observed differences. It appears that the subject's language skills, gender, and cultural background (as measured by ethnicity) played important roles in the observed outcomes.

Conclusions

As discussed in Chapter II, there are four factors that advance effective communication. They are communication skills, attitudes, knowledge level, and position within a social-cultural system. Communications skills include reading, writing, speaking, listening, and thought or reasoning. Also discussed in Chapter II, is the notion of noise as any factor that interferes with communications. Noise may appear in any of the components within the communications process and because noise can appear in any or all of the elements of communications, it is the one element that is responsible for most mis-communications. Using these premises as my conceptual framework, I propose four reasons to explain the results of this study.

The Interaction Between Instructor Gender and Student Defined Instructor Expressivity

First, the subjects in this study were from a multi-cultural population. Their social-cultural system and their communications skills such as their reading, writing,

speaking, listening, and thought or reasoning levels were as diverse as their multi-cultural backgrounds. The cultural and educational diversity of the population may have induced a large measure of noise into the teaching/learning process. These varied cultural perceptions acting in a social and educational system that was foreign to large number of these students, could have had a great effect upon the results of the study. These differences, then would have, obscured the effects of the treatment variables.

Second, expressivity is a relative term. It is a multi-dimensional variable. Many variables contribute to a definition of expressivity, inclusing facial expressions, body movement, and vocal inflection, pacing, pitch, and volume. Both verbal and non-verbal constructs contribute to the barriers that prevent effective communications. What is high expressive behavior to one person may be considered low expressive behavior to another person. This would explain both the fact that different ethnic groups rated the instructors differently as to their expressivity and why signigicant results were found, on the interaction of instructor gender and expressivity, only obtained when student defined expressivity was used as the expressivity variable.

The students who viewed the low expressive male and high expressive female scored the highest on the exam.

These findings are consistent with the opinions of Brend (1975), Borisoff and Merrill (1985), Connell (1987), and Eagly (1987) that were discussed in Chapter I, page 8. They state that past traditions of our society suggest that unexpressive males, or a somewhat strict authority figure, have a positive impact on student learning. While females who hope to have an influence on learning act in a warm and personal manner with their students. However, the fact remains that these students have been able to learn equally well from the female as well as the male. As suggested by Christopher (1977), Bluhm (1982), and Colley and Hargreaves (1986) in Chapter II (page 32), society may be slowly changing its male/female prejudices.

A question remains as to why significance was found on the interaction between on-screen instructor gender and expressivity only when the students' definition of expressivity was used. The chi-square report in Table 26, on page 115, may provide the answer to this question. The saying goes that, "beauty, or in this case, expressivity, is in the eyes of the beholder". We see in Table 26 that of the 52 people to rate the instructors as low expressive 26 (50%) are in the English as a first language group. Of the 68 subjects to rate the instructors as high expressive 33 (48.5%) are in the Spanish as a first language group. This

split, appears to be along the lines of cultural perceptions.

A goodness of fit test has shown that by using student ratings of expressivity the results were stratified along ethnic lines. The English speaking group, which represented 30.8% of the subjects, and scored highest on the exam (78.51%), rated the instructors as low expressive. The Spanish speaking group, which represented 37.5% of the subjects, and scored 16.07 points lower than the English speaking group (62.44%), rated the instructors as high expressive. This dichotomy may indeed be the reason why significance was found when student rated expressivity was substituted for expressivity defined by the experiment's design.

In order to investigate the relationship of expressivity to student ethnicity (as first language), reading level, and subject gender to expressivity, three one-way analyses of variance were run using expressivity as the dependent variable. The independent variables were respectively student ethnicity (as first language), reading level, and subject gender. A significant relationship was established between expressivity and language ($F=6.84$, $p=.01$), but not between expressivity and reading level ($F=.61$, $p=.55$) or expressivity and subject gender ($F=0.0$,

p=.95). This finding seems to significantly isolate a relationship between ethnicity and expressivity.

The interpretation that has been placed upon the gender and expressivity of instructors has led people to value one over the other and appears to be related to students' cultural perceptions. Therefore, when the groups were divided for statistical analysis based upon these interpretations significant differences between the groups emerged.

Expressivity may be more a matter of individual differences than anything else. The subjects view of the instructors may have been related to some other cultural, behavioral, cognitive, environmental, or sensory variable that was neither anticipated nor measured. If so, than it was the perceptions of what this multi-cultural group of students considered to be expressive or unexpressive behavior, and not the material presented in the videotapes, that caused the differences in these groups.

Third, the subject matter, basic computer skills, may have been too difficult for the population, and masked the hoped for treatment effects. That is, that the effects of on-screen instructor gender and expressivity, taught by means of a videotaped lesson, were too small to be measured against the larger consequence of asking this population of under or unemployed adults to master this specific content

matter. The use of simpler content or subject matter and a shorter videotape may not have obscured the effects under study.

A fourth possible explanation is that even though the questions were competency based in nature, the test instrument was too dependent upon student's cognitive abilities. The data indicates that the subject matter and the test instrument was beyond 42% of all of the subjects reading levels. The test was written on a fifth grade reading level. However, 50 of the subjects had reading levels below the fifth grade. Given that reading levels were so heavily correlated with the test scores, it might be concluded that the subject related variables had more to do with the results than the treatment variables.

The Interaction Between Student Gender and Instructor Gender

The interaction between instructor gender and student gender indicates that the group of men in this study learned more from the female instructor, while the group of women learned more from the male instructor. The reason for these findings could rest in the dynamic of the student's definition of what and who an instructor should be. The acceptance or rejection of this individual is a key factor the acceptance or rejection of what that instructor is communicating. While gender related barriers to effective communications still exist, the finding of this study tend

to indicate that these findings are at odds with a number of studies. These results indicate that neither masculine nor feminine communicative acts are inherently better or worse; stronger or weaker. What may have accounted for the gender-gender interaction was the level of attention one gender of student paid to the opposite gendered instructor. Because they paid more attention, they may have learned more from the videotape. Clearly more research is needed in this area.

Subjects' First Language, Reading Level, and Time Spent Taking the Exam

It seems that, as stated earlier, the instrument was too dependent upon student's ability to read the exam. The first language spoken variable was a measure of ethnicity meant to be used for cultural identification. Possibly, it should not be confused with language proficiency. We can conclude that those subjects with higher reading levels took less time to take the exam and scored higher on the exam.

Prior Computer Experience

Prior computer experience proved to be a significant variable. There were only 16 subjects (13%) who claimed to have had any extensive computer experience. While prior computer experience was a factor, it did not appear to affect any of the other significant variables or interactions.

Recommendations for Practice

The results of this study indicate that instructional designers and producers of videotapes for adults with limited language abilities should keep the subject matter as simple as possible and the tapes as short as possible. An in depth knowledge of the demographic (organismic) characteristics of the audience for whom the tapes are intended is crucial.

In chapter one a number of issues were raised and questions were posed regarding the implications of this study for the practice of instructional technology. It was stated that those charged with designing and producing these programs are making uninformed decisions about who will appear, and how they will act, in these training tapes. Decisions are being made on the strength of preconceived cultural stereotypes, gender biases, common folklore, and purely anecdotal observations. The results of this study have addressed four of these concerns in a tangible fashion. However, these findings indicate a need for replication of the study before making definitive and unequivocal statements about determining practice.

The first question posed was, who should the narrator be in a videotape designed to teach a group of adults beginning computer skills? The results of this study indicate that, with a population similar to one used in the

study, (a) if you are training women the narrator should be a man and if you are training men, the narrator should be a woman; (b) female on-screen instructors should act in a high expressive fashion while male on-screen instructors should act in a low expressive manner.

The second was, what if the majority of the students are immigrants with their own cultural biases and traditions? Great detail needs to be paid to the language abilities or short comings of the audience. Instructional design must cater to the strengths of the abilities of the audience and avoid their weaknesses.

The third question posed was, should the choice of the instructor be made exclusively on the hoped-for effect on the audience? Great attention must be paid to the cultural biases and stereotypes of the audience. However, the practice of matching instructor and audience based on stereotypical roles will not always succeed. The designers of instruction should not become so engrossed in their content specialties that they forget their larger societal role as a force of positive change. In addition, as more women and men enter non-traditional gender related career areas, stereotypes may change, or even disappear. Producers can easily loose touch with just what those stereotypes might be. Instructional strategies that play to the strengths of the audience, the organization's values, and

society at large all need to be considered by subject matter experts, instructional designers/video producers, and management. The instructional designer should then assume an iconoclastic role by taking the lead in breaking these cultural stereotypes and biases. However, this should not be done at the expense of the effectiveness of the instruction. Most management will not allow any "noise" in the training process that may detract from the immediate goals of the intended instruction.

A vast range of topics may be used in video-based training. This makes it impossible to articulate an all-encompassing statement on the appropriateness and propriety of using instructional media to change cultural biases in the course of presenting content related subject matter. However, just as our consciousness has been raised to many societal issues by open discussion and treatments in the mass media, designers of instructional media need to begin to address their role as perpetuators of stereotypical behavior and cultural biases. A balance that must be struck between meeting immediate organizational training goals and our responsibilities to help develop more aware, more sensitive, and more critical viewers. Subtle, clever, creative, and innovative messages that present, unmask, discuss, and explain our biases can, and should be incorporated into most instructional programs. This will

present a very real and important challenge to designers of instructional programs.

A fourth question posed in chapter one deals with how an instructor should perform in front of the camera. Should the instructor be warm and expressive to encourage the students to do their best work, or should the instructor be somewhat distant and objective to communicate the seriousness of the subject matter? The results of this study clearly indicate that, for this population, learning this subject matter, female on-screen instructors should be directed, by video producer/directors, to act either in an average or a high expressive fashion. Male on-screen instructors, teaching this same population and subject matter, should be directed to behave in a low expressive fashion. However, it was only with the inclusion of student related characteristics that significant results were achieved.

Designers of organizational video-based instruction must: (a) know the audience for whom they are fashioning their instructional programming, (b) learn as much about that audience's demographic characteristics (organismic variables) as is feasible, (c) do an in-depth analysis of the subject matter to be presented, always keeping their target audience in mind, (d) divide the content into easily digestible bytes for presentation within the video-based

format, (e) attempt to match on-screen instructor characteristics with those audience attributes that will maximize learning, and (f) wherever possible, within the context of working with others on the content and production of the program, attempt to debunk stereotypical prejudices and cultural biases held by the organization and by the audience.

It should be noted that these recommendations are the result of but one study. The subjects used in this study were drawn from an economically disadvantaged, multi-cultural, population. The subject matter of the videotapes represented a somewhat gender neutral content area. Caution should be used in applying these recommendations to other populations and/or subject matter.

Recommendations for Future Research

Based on the findings and conclusions of this study the following recommendations were made:

1. This study should be replicated using a less complex subject matter. If the intent of the study is to measure instructor related characteristics using video based instruction, to avoid obscuring the effect of the instructor on the learner, the subject matter should be kept as simple as possible. It has been demonstrated that there are differences in learning that can be attributed to instructor gender and expressivity. However, it is believed that, for this population, the task of learning the content within these videotapes was so difficult for many of the subjects, that the effect of instructor gender and expressivity was eclipsed.

2. This study should be replicated using the same six videotapes on a different population. The subjects in this study were all unemployed or underemployed adults. Forty-two percent of them had reading levels that were below the fifth grade. Sixty-nine percent of the students listed a language other that English as their first language.

3. This study should be replicated using different male and female actors using greater degrees of expressivity. This may yield better defined group variances.

4. This study should be replicated using an exam that was less dependent upon cognitive abilities. If the intent of the study is to measure instructor related characteristics with a population that has limited language abilities than the measure of learning needs to be more competency based.

5. This study should be replicated using shorter videotapes. This may have the effect of enhancing learning, which may result in a clearer picture of the effects of on-screen instructor gender and expressivity on that learning.

6. In order to test the long-term versus the short-term retention of the material presented on the videotapes this study should be replicated retesting the students on the information presented over a series of given time intervals.

7. The importance of student related variables has been affirmed. Further research needs to conducted on the interaction between instructor related variables and student related variables.

8. Investigations should be conducted into the role student's language abilities played in success or failure on the exam. Questions to consider are: (a) Did the students with greater language skills in one group do better on the exam because their higher language abilities helped them to better understand one on-screen instructor over another or

was it just that they were better equipped to read and comprehend the exam? (b) Were higher scores on the exam attributable to more learning from one treatment or another, or was it attributable to cognitive, cultural, expressivity, or gender issues?

Concluding Remarks

This research was initiated because producers of instructional videotapes were making uninformed decisions about who will appear, and how they will act, in these training tapes. Decisions were being made on the strength of preconceived cultural stereotypes, gender biases, common folklore, and purely empirical observations, and not on the findings of any known research on this topic.

So that instructional designers and producers may at least begin to rethink their positions, it was my intent to demonstrate that these cultural stereotypes and biases are not based in fact. This research has, to a large extent, succeeded in bringing into question many of these practices.

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APPENDIX A

A Description of the Arlington Employment Training Center

The Arlington County Employment Training Center (ETC) provides a coordinated program funded through several sources. The funding sources are the Job Training Partnership Act (JTPA), state vocational education set-aside funds (under the Perkins Act), Targeted Assistance Program (TAP) for eligible refugees, Community Development Block Grants, Arlington County supplemental funds, and school operating funds. To facilitate provision of training under the terms of several different funding sources, ETC operates on an open entry/open exit basis. Trainees complete training when they demonstrate mastery of the job skills competencies required by the Virginia Vocational Education Department and obtain a job. The program components within ETC are designed to provide support for the training provided under the different funding sources. For example, ETC conducts outreach and recruitment among all disadvantaged population groups eligible for enrollment. A comprehensive intake and assessment process permits trainees to be assigned to the trade skill areas which best match their needs. Employability instruction and counseling (including job clubs) are provided to all trainees. Full-time staff members conduct job placement and follow-up activities.

Department of Labor (OMB) Eligibility Guidelines

Family Size	Income Level
1	$ 6,280
2	$ 9,820
3	$13,470
4	$16,630
5	$19,630
6	$22,950
7	$26,270
8	$29,590
9	$32,910
10	$36,230

APPENDIX B

Listing of Competency Based Skills to be Taught

Unit 1: Introduction to Personal Computers

1. Define, list and use Disk Operating System (DOS) commands. To include the following fundamental DOS commands: dir, copy, diskcopy, erase, rename, format, chkdsk, cd (chdir), date, time, and ver.	1. 80% accuracy on teacher-designed tests covering DOS concepts, applications, and fundamental commands.
2. Use personal computer hardware components and peripheral devices, including: CPU, keyboard, floppy disk drives, hard or fixed disk drives, monitors, printers, mouse, modem, and Random Access Memory (RAM).	2. 80% accuracy on teacher-designed tests covering personal computer hardware components and peripheral devices.
3. Define, list and properly use software terminology, including: boot, write-protect, read/write window, file, file name, file extension, program, byte, load, program version, ASCII, and run application programs such as word processors. Use 5½" floppy computer disks on a personal computer so as to run word processing, data base and spreadsheet software.	3. 80% accuracy on teacher-designed tests covering personal computer software safety precautions, uses, and terminology.

Unit 2: Computer Office Applications: Data Base and Spreadsheet Programs

1. Define, list and use data base program concepts and terminology, including the terms: data file, record, field, key field, character field, numeric field, index, sort, and report; load and run a data base program; retrieve an existing data file; add, modify, delete, and index records; save file to disk; print file to hard copy.	1. 80% accuracy on teacher-designed tests covering 1)data base concepts and terminology and 2)retrieving, modifying, saving, and printing a data base file.
2. Define, list and use spreadsheet program terminology, including the terms: work sheet, cell, row (record), column (field), label (text), value (numeric), formula, and range; load and run a spreadsheet program; retrieve an existing spreadsheet file; add, modify, and delete cell data; save file to disk; print file to hard copy.	2. 80% accuracy on teacher-designed tests covering 1)spreadsheet concepts and terminology and 2) retrieving, modifying, saving, and printing a spreadsheet file.

APPENDIX C
Video Script On Basic Computer Skills
AN INTRODUCTION TO THE COMPUTER
by Michele Bajek, C. Thomas Crabtree, and Arnold Meyrow

Hello, I'm (Barbara Bartos/Tom Fuller).

Today you will learn the main parts of a computer and get a quick overview of how it works. Then, I will explain four important computer commands.

As I said, before we go over the actual four commands, I am going to tell you a little about the computer itself. Then, when you use it, you will have at least a basic understanding of how it works.

I'm sure you've all seen computers before. You've seen people sitting at them typing and looking at a screen. You have seen at least two of the main parts of the computer. The screen people look into is called the monitor. Much like the screen on your television, the monitor shows you what you have typed into the computer. The keyboard is very much like a typewriter keyboard with extra keys.

A third part of the computer is the central processing unit, the CPU. The CPU is the 'brain' of the computer. This is where information is processed. The information that is processed and the information that is waiting to be processed is stored in another part of the computer.

The storage place for this information inside the computer is called Random Access Memory or RAM. RAM is the computer's memory. RAM is active only when the computer is on. The information in RAM is erased when you turn the computer off. So, if you want to keep the information you put into the computer, you must take specific steps to permanently store this information.

A disk is used to permanently store the information from RAM. You can either store the information inside the computer on the hard disk, or you can store the information on a disk you can take out of the machine and take with you. This kind of disk is called a floppy disk. The device that actually writes the information onto a disk is called a disk drive. Nowadays most computers have one or two floppy disk drives and one hard disk drive. Other computers have two floppy disk drives but no hard disk drive. Our discussion today is about a computer that has only one floppy drive and a hard disk drive. This is the way most personal computers

found in the home and in offices are put together. The first disk drive is called the 'A' disk drive. The hard disk is called the 'C' drive. If the computer has a second floppy disk drive it is called the 'B' drive. Notice that a disk drive has a small light on the front. This light comes on when the disk drive uses a disk. Hard disk drives are completely sealed. Therefore you cannot put floppy disks into them, nor can you take them out the way you can with a floppy drive. On a hard disk drive the disks are fixed within the drive and cannot be taken out. Sometimes hard drives are also called fixed drives.

Of course, you often need to have your information printed on paper. The printer receives the information either from a disk or from the computer's RAM and prints it on paper.

So, we have discussed six parts of the basic computer system. These parts are one, the monitor which has a screen for you to see the information; two, the keyboard upon which you type the information you wish to enter into the computer; three, the CPU which processes the information; four, RAM which stores information inside the computer when the computer is on; five, the disk drive which stores your information onto a disk; and six, the printer which converts your information into a paper copy. All of these parts are known as hardware. You'll learn more about them later.

For now, you should know that some parts of the computer are devoted to putting information into the computer and others are used to take the information out. The keyboard is used to put information into the computer; it's an input device. The printer takes information out, so it is an output device.

Computers do many different tasks. You may want to use the computer to draw diagrams or pictures. Then again, you may want to use the same computer to produce a typed report. How does the computer know how to do these different things? The computer uses a set of instructions called a program to tell it what to do and how to do it. Computer programs are called software. You'll be using software later to tell the computer to work as a word processor.

As we have seen, to make the computer's hardware work with each other and to use different software effectively, the computer needs a set of instructions. Think again of the person sitting at a computer typing on the keyboard and looking at the screen. How do you think the computer knows

how to take the information from the keyboard, put it on the screen, store it, and print it on the printer?

Let's compare using a car with using a computer. You know that you must use a key to start the car. Then the car is ready to drive. Using a computer is similar. You must use a special program to start the computer; it is the key to starting your computer. It is called the 'boot' program. Starting the computer is called 'booting' the computer. The boot program is stored on a disk called the DOS disk. DOS is an abbreviation for Disk Operating System. So, every time you turn on the computer you must put the DOS disk in the disk drive. Then the boot program will be transferred automatically from the DOS disk into the computer's memory. When using a computer with a properly formatted hard disk drive, DOS is already on the hard disk and will self-install when you turn on the computer. The computers you will be using already have properly formatted hard disks.

The boot program contains a small vocabulary of words that DOS understands. These words are called 'internal DOS commands' because they are internal to the computer's memory after booting. These internal DOS commands will remain in memory until the computer is turned off. One of the internal commands allows us to see a list of the information that is on a disk. A second internal command allows us to tell DOS the correct date. And another internal command will copy information from one disk to another. We must learn how to use these internal DOS commands so that we can communicate our needs to DOS. We will learn how to use some of them in a moment.

You already know that the boot program is stored on the DOS disk or on the hard drive. DOS includes other programs, too. These other programs are called 'external DOS commands' because they are stored on the DOS disk or hard drive, outside of the computer's memory, until we need to use them. One external DOS command allows us to copy a disk, another to prepare a new disk, and another to learn how much memory is inside the computer. There are more than forty external DOS commands stored on the DOS disk.

You give commands to DOS to tell it what you want it to do. If it is an external command, DOS will need to transfer the external command from the hard disk, or a floppy drive with a DOS disk in it, into the computer's memory before it can be used. We will not be dealing with external commands in this video lesson.

So, DOS does four important jobs:

one- the DOS boot program starts the computer;
two- DOS tells the parts of a computer - the hardware - how to work with each other;
three- DOS reads and interprets commands that you give;
and four, DOS manages the computer's memory.

Here are the steps to boot the computer. First, the monitor is turned on. Second, the computer is turned on. The computer automatically tests its RAM and CPU when it is turned on. The computer will beep one time when the test is successful. Next, the light on disk drive 'C' comes on as the boot program is transferred into RAM. When the drive light goes out, hit the [Enter] key two times.
This tape will now pause for 30 seconds while you go ahead and turn on your monitors and computers. (pause) If you were not able to finish these two tasks please raise your hand so that the classroom instructor may pause the tape and help you boot up the computer in front of you.
The computer monitor screen will then look like this:

Current date is Tue 01-01-80

Enter new date (mm-dd-yy):

Current time is 00:00:03.00

Enter new time:

MS-DOS Vers. 3.3 (c) copyright Microsoft Corporation 1987

C>

In the upper left corner of the screen the date and time, as registered in the computer, are displayed. Under it the version of DOS being used is displayed. The last line on the screen has "C" and an arrow. This is called the DOS 'prompt' and indicates that the computer is ready to be

used. We call the "C" and arrow a prompt because it is prompting you to communicate with DOS. It is not the only kind of prompt, but it is the only one we'll deal with right now. The "C" tells you which disk drive DOS is using. This computer has one floppy drive, called the "A" drive. Drive "A" is usually where you put a floppy disk that has a software program on it that you wish to transfer to the hard disk. The hard disk, or "C" drive can hold thousands of times more information than a floppy disk can. The "A" drive is also used to back-up the programs and information that are stored on the hard disk. A back-up is the copying of the information on the hard disk to a series of floppy disks. The hard disk should be backed up on a regular basis. In that way, if it were to breakdown, you would not lose all of the information stored on the hard disk. You may have heard people say, "my computer has crashed." A computer crash usually refers to the breakdown of the hard disk.
Now, once again, let's look at the screen on your monitor. To the right of the "C" prompt is a blinking line. It is the 'cursor'. The cursor shows where each keystroke will appear on the screen. Using the computer in front of you try typing your name on screen. If you make a mistake, use the backspace key to move the cursor back and to erase your mistake. I'll give you 30 seconds to try it (pause 30 seconds). Get the idea? Now even if you're not finished typing your name, hit the enter key (pause 5 seconds). You should get a message that reads, 'BAD COMMAND OR FILE NAME'. For now, don't worry about this message. Let's go on.

I'm going to explain four internal DOS commands right now. DATE and TIME are the first two DOS commands we'll talk about. You should tell DOS today's date and the time so it can help you keep track of your work and put the date on it for you.

Now, let's learn the steps required to give DOS the correct date information.
First type the word DATE and hit the [Enter] key. DOS will display the current date setting on one line and will give you an opportunity to change it on the next line. Then use numbers for typing in today's month, date, and year. Remember to put the month first, day second, and the year last. The computer keeps track of the day of the week and will put in the name of the day for you. For example, it knows that March 9th, 1993 falls on a Tuesday. Separate the three numbers by typing either a slash or a hyphen between them. The date you type will look something like this, 11-18-90. Now press the [Enter] key. I'll wait 30 seconds

while you try this on your computer (pause 30 seconds). Don't worry if you haven't finished, you'll have plenty of time to practice when this tape is over. Even if you're not finished, hit the enter key now and we will continue (wait 5 seconds).

DOS will now display a new 'C' prompt. This indicates DOS completed your command and is again waiting for you to tell it what to do.

Next, let's learn the steps required to give DOS the correct time information. Type the word TIME and hit the [Enter] key. DOS will display the current time setting on one line and will give you an opportunity to change it on the next line. DOS displays the hour, minute, second and hundredths of a second. Type in the time by typing the hour, a colon, and then the minute. You don't need to enter the seconds and hundredths of seconds. DOS uses a twenty-four hour clock, so if the current time is after twelve noon, you will add twelve to the hour. For example, ten minutes after seven o'clock at night is nineteen hours and ten minutes. The time you type will look something like this, 19:10. Press the [Enter] key when finished. Now it's your turn. Once again I'll wait 30 seconds for you to try to enter the current time into your machine (pause 30 seconds). Did you finish? If not, try again after this tape is over. Hit the [Enter] key now so that we can continue (pause 5 seconds). We are now finished entering the date and time. Notice that a new DOS prompt is again on the last line.

"DIR" is the next command you should know. "DIR" is an internal DOS command. DIR is used to see what information is on a disk. Type "DIR" and hit the [Enter] key, the monitor will display a list of the names of some of the programs and files on that disk. "DIR", means DIRECTORY. Let's use the "DIR" command to see what files are on your "C" drive . Type "D I R" and hit the [Enter] key (pause 10 seconds). The red light on disk drive "C" comes on. Then a list of information is displayed on the screen. The directory listing has five columns of information. Compare the list on your screen to the list on my screen. The first two columns tell you the names of the files. You can think of a file as you would a file folder. Each time you begin a new work subject, you would open a new file folder to hold the information. The third column tells you how big the file is. The fourth tells you the date the file was last worked on and the fifth column tells you the time the file was put on the disk. The last row, at the bottom of the screen tells how many files are on the disk and the amount

of free space remaining. Later, in the year you will study the "DIR" command in greater detail.

The last DOS command we will discuss is the VER command. VER means version. Many versions of DOS exist because DOS is regularly changed and improved. Version one-point-zero was the first version of DOS. We currently are using DOS version 3 point 3. Sometimes it is necessary to know exactly which version of DOS is in computer memory. On your computer, type VER and hit the [Enter] key. This time I'll wait 20 seconds for you (pause 20 seconds). The current version of DOS that is being used by your computer should now be displayed on your screen.

Most offices, businesses and individuals that use computers install menu programs that automatically load when the computer is turned on. It runs after DOS is loaded and the date and time are set. A menu program is a program that helps to load other programs. It saves the user from learning and having to type in many DOS commands. It makes the computer more "user friendly". User friendly is a term that means that a software program has been designed so that it is easy for you to use. It allows you to run programs by just typing in the number or letter of the program you wish to run. To see the menu we will be using in this class just the type the word menu, "M E N U". Hit the Enter key. I'll wait for 10 seconds for you to do this (pause). The screen on your computer monitor should now look just like the one on the TV screen. If it doesn't don't worry about it for now.

We've completed our lesson for today, so let's go over what we've covered. We talked first about the main parts of a computer. You probably remember that the computer consists of the Central Processing Unit, or CPU, which processes information; the computer memory called RAM, which stores the information that the CPU processes; the monitor, which displays the information; the keyboard, which is used to put information into the computer; the disk drives, which store information safely onto disks; and the printer, which makes paper copies of the information. Some computer devices enter information; these are input devices. Other computer components take information out; these are output devices. The computer parts themselves are known as the hardware. The programs that go into the computers are called software. In order to run programs, store information, and make all the components work together; our computers use the disk operating system, called DOS. After we discussed how the computer works, we talked about the DOS disk and the boot

program that is on it. The boot program is used to start the computer and it contains the internal DOS commands. The DOS disk also stores other programs called external DOS commands. We learned the differences between, and uses of, floppy and hard disk drives. We learned that a screen menu is a program that helps to access other programs.

We learned these four internal DOS commands.
First, DATE. After you boot the computer, you should tell DOS the correct date. DOS wants you to enter the date with the number of the month, date, and year, each separated by a dash. In this way DOS keeps an accurate record of when you begin working on each file.
The command looks like this
C> DATE
The current date is: Tue 01-01-80
Enter new date (mm-dd-yy):
The second DOS command we learned is TIME.
We usually set the time immediately after the date is set. DOS wants you to enter the time using the twenty-four hour clock, so you would add twelve to any hour after noon. Enter the hour, a colon, and the minute and the hit the [Enter] key.

The command looks like this
C> TIME
The current time is: 14:22:52.17
Enter new time:
The third DOS command we learned is D I R. When you want to know everything that is on a disk, you use the command, D I R. D I R stands for directory. So, when you type D I R and hit the [Enter] key, you get a directory of all the files, the size of each, the date it was last worked on, and the time the work began. You also see how many files are on a disk and how much disk space is free to use.
The command looks like this:
C> DIR

The fourth DOS command we learned is V E R.
Different versions of DOS exist because DOS is regularly changed and improved. It is sometimes necessary to know exactly which version of DOS is being used in a computer.

The command looks like this:
C> VER

You've had a chance to practice some of the skill we've presented. At this point your computer and monitor should be turned on. The monitor screen should have a menu on it

that looks just like this. If it does not, please raise your hand so the classroom instructor may pause this tape and help you. I'll wait 20 seconds (pause).

Even though you may still have questions about what we've covered, we are going to ask you to take a short quiz on the material just presented in this videotape. YOUR ANSWERS WILL NOT EFFECT YOUR GRADE IN THIS CLASS OR YOUR PROGRESS THROUGH THE E T C PROGRAM. It is purely a test of how much you learned from this videotape on the computer. The test is made up of forty questions. The first twenty questions will ask you to give information about yourself and what you thought of the videotape. The next twenty questions will be about the material presented in the videotape. All of your answers will be kept private. They will only be used to study the effectiveness of the videotape.

The computer in front of you will give you the exam. Type all of your answers onto the computer - and remember to hit the enter key after you answer each question. The menu screen on your computer monitor has a selection that will take you back to DOS. It is number ??, which reads, "EXIT MENU/RETURN TO DOS". Select this menu item now. I'll wait 10 seconds for you to do this (pause). Your screen should now look like this. At the "C" prompt, type the word TEST, that's T E S T on the keyboard and hit the [Enter] key. The light on drive "C" should come on. Your computer screen should now have a message on it that begins with the phrase, "You Have Just Seen and Heard A Videotape". I'll wait 15 seconds for you to do this (pause 15 seconds). If the screen on your monitor does not look like this, please raise your hand and ask your in-class instructor for help. If it does look like mine, then go ahead and begin the quiz. The computer will keep track of your answers. In a few weeks your classroom instructor will be able to give you a report on your grade.

Thank you for your cooperation and good luck.

APPENDIX D
Instrument to Test Basic Computer Competencies
Student Questionnaire

You have just seen and heard a videotape.
It showed you how to perform some basic
computer operations on a personal computer.

We would like to see just how much you learned
about computers from viewing this tape.
We would also like to know something about you.

There are 20 questions about you and how you feel about
computers and the videotape you have just seen.

There are 20 more questions on the information
in the videotaped lesson.

REMEMBER TO HIT THE 'ENTER' KEY AFTER YOU ANSWER EACH
QUESTION!

HIT THE 'ENTER' KEY TO BEGIN

1. What is your last name?

LAST NAME =

2. What is your first name?

FIRST NAME =

3. In what year were you born?

4. Are you a man or a woman?

1. Woman
2. Man

5. What is today's date?

mm-dd-yy (mm=month; dd=date; yy=year)
(for example August 10, 1990 would be typed in as

08-10-90).

6. Have ever operated a personal computer before?

    1. yes
    2. no

7. How many total hours do you think that you have spent operating a computer in an informal (non-work related) setting?

    1. 0 hours
    2. 1 - 3
    3. 4 - 6 hours
    4. 7 - 9 hours
    5. 10 or more hours

8. How many total hours do you think that you have spent operating a computer in a formal (work related) setting?

    1. 0 hours
    2. 1 - 3
    3. 4 - 6 hours
    4. 7 - 9 hours
    5. 10 or more hours

9. Have you ever had a class, or classes, on how to operate a personal computer? If so, about how many hours of training?

    1. I have never had a computer class
    2. 1 - 3 hours
    3. 4 - 6 hours
    4. 7 - 9 hours
    5. 10 or more hours

10. Do you own a personal computer?

    1. Yes
    2. No

11. Does someone you know let you use their personal computer?

    1. Yes
    2. No

12. How do you feel about the idea of working with computers?

    1. I am scared
    2. I hate the idea, but have come to accept it
    3. I am kind of looking forward to it
    4. I am eager to start
    5. I am very eager to start

13. Was the instructor in the videotape you viewed a man or a woman?

    1. Woman
    2. Man

Instructions for questions 14-20.
The next seven questions ask you to tell us how you felt about the instructor and the videotape you viewed. Select the number, from one to seven, that is under the choice that best describes the way you feel.

14. How expressive was the instructor in the videotape?

not expressive		expressive		very expressive		
1	2	3	4	5	6	7

15. To what extent did the instructor in the videotape hold your interest?

not at all			kept my interest		very much	
1	2	3	4	5	6	7

16. To what extent did the instructor hold your attention?

not at all			held my attention		very much	
1	2	3	4	5	6	7

17. How energetic was the instructor in the videotape?

was not energetic			was energetic		was very energetic	
1	2	3	4	5	6	7

18. How forceful was the instructor in the videotape?

not forceful			forceful			very forceful
1	2	3	4	5	6	7

19. How do you feel about learning computer skills from a videotaped lesson?

I hated it			it was all right			it was great
1	2	3	4	5	6	7

20. How do you feel about the videotape you viewed as a learning experience?

I hated it			it was all right			it was great
1	2	3	4	5	6	7

APPENDIX E
Instrument to Test Basic Computer Competencies

We will now begin a short (20 question) quiz on the information presented in the videotape.

ANSWER EACH QUESTION AS BEST YOU CAN.

Just as before,

HIT THE 'ENTER' KEY TO BEGIN
REMEMBER TO HIT THE 'ENTER' KEY AFTER YOU ANSWER EACH QUESTION!

ALL QUESTIONS AND ANSWERS ARE REFER TO THE VIDEOTAPE THAT YOU HAVE JUST VIEWED

1. The six main parts of the computer, discussed in this videotape, and know as hardware are the:

    1. monitor, keyboard, CPU, programs, RAM, and printer
    2. monitor, keyboard, CPA, DOS, disk drive, and printer
    3. monitor, keyboard, CPU, RAM, disk drive, and printer
    4. monitor, program, modem, RAM, disk drawer, and CPU

2. Which of the following is know as the, "brain" of the computer?

    1. the CPU
    2. the RAM
    3. the disk drive
    4. the keyboard

3. The storage place for information that is waiting to be processed in the computer is called:

    1. the CPU
    2. the disk drive
    3. the RAM
    4. the keyboard

4. What device is used to save the work that you do on a computer when you turn the computer off?

    1. the CPU
    2. the disk drive
    3. the RAM
    4. the keyboard

5. What device allows you to save your information, back-up your fixed drive, and lets you remove the saved information from the machine and take it with you?

    1. the hard disk
    2. the floppy disk
    3. the printer
    4. the monitor

6. What device allows you to get a paper copy of the information stored in the computer or on a disk drive?

    1. the hard disk
    2. the floppy disk
    3. the printer
    4. the monitor

7. Which of the following devices is <u>not</u> an input device:

    1. the hard disk
    2. the floppy disk
    3. the printer
    4. the keyboard

8. Computers do many different tasks, such as produce typed reports, draw diagrams, or add numbers. Which of the items listed below tells the computer to do one or more of these different tasks?

    1. printer
    2. monitor
    3. DOS
    4. software

9. What is the name of the program (also called the "boot" program) that is used to start your computer and tell all of the parts of the computer how to work together?

    1. DOS
    2. CPU
    3. RAM
    4. DIR

10. The boot program contains a small set of words that the disk operating system understands. These are called "internal" commands. What are four of these commands?

    1. RAM, CPU, VER, and DIR
    2. RAM, VER, DIR, and DATE
    3. VER, DIR, CPU, and TIME
    4. VER, DATE, TIME, and DIR

11. The blinking line to the right of the DOS prompt is called the:

    1. monitor
    2. cursor
    3. disk drive
    4. backspace key

12. What do you know about your computer if your DOS prompt looks like this C>_ ?

    1. you have a C drive and three drives in your machine
    2. you have a C drive which is probably a hard disk
    3. you have a C drive which is probably a floppy disk
    4. you have a C drive but DOS is not loaded

13. Which of the answers below is the best example of the proper way to give DOS the correct DATE information?

1. a. turn on your computer and monitor;
   b. at the C prompt type the word DATE;
   c. using numbers, first the type the month, a dash,
   d. then the day, a dash
   e. then the year
   f. then hit the enter key

2. a. turn on your computer and monitor;
   b. type the word DATE; hit the enter key
   c. using numbers, first the type the month, a dash,
   d. then the day, a dash
   e. then the year
   f. then hit the enter key

3. a. turn on your computer and monitor;
   b. type the word DATE; hit the enter key
   c. using numbers, first the type the month, a colon,
   d. then the day, a colon,
   e. then the year
   f. then hit the enter key

4. a. turn on your computer and monitor;
   b. type the word TODAY/DATE; hit the enter key
   c. using numbers, first the type the month, slash,
   d. then the day, a slash,
   e. then the year
   f. then hit the enter key

14. Which of the answers below is the best example of the proper way to give DOS the correct TIME information?

1. a. turn on your computer and monitor;
   b. properly enter the DATE
   c. at the C prompt type the word TIME;
   d. using numbers, first the type the hour, a dash,
   e. then the minute, a dash
   f. then hit the enter key

2. a. turn on your computer and monitor;
   b. properly enter the DATE
   c. type the word TIME; hit the enter key
   d. using numbers, first the type the hour, a dash,
   e. then the minute, a dash
   f. then hit the enter key

3. a. turn on your computer and monitor;
   b. properly enter the DATE
   c. type the word TIME; hit the enter key
   d. using numbers, first the type the hour, a colon,
   e. then the minute, a colon,
   f. then hit the enter key

4 a. turn on your computer and monitor;
   b. type the word TIME; hit the enter key
   c. using numbers, first the type the hour, a slash,
   d. then the minute, a slash,
   e. then the seconds
   f. then hit the enter key

15. What word do you type on the keyboard to look at the files on your disk?

1. DATE
2. TIME
3. DIR
4. VER

16. When you type in the VER command what does the computer display on the monitor?

    1. the current version of DOS being used by the computer
    2. the lowest version of DOS needed by your computer
    3. the version of the software about to be installed
    4. the verification of the information on the hard disk

17. When you type the DIR command you see files listed on your monitor screen. There are five pieces of information shown to you. Which of the follow is <u>not</u> listed on the monitor when you type DIR?

    1. the name of the file
    2. the amount of space remaining on the disk
    3. the amount of RAM remaining on the disk
    4. the date the file was created or updated

18. What is the name of the program that makes computers more "user friendly" and saves you from having to learn and use many different DOS commands is called a:

    1. software guide
    2. hardware interface
    3. user's help key
    4. menu

19. What does the term DIR stand for?

    1. disk drive
    2. directory
    3. disk interrupt
    4. direct information return

20. What is the name of the device that receives information either from the disk or from RAM and prints that information onto paper?

    1. hard disk drive
    2. floppy disk drive
    3. printer
    4. monitor

APPENDIX F
Form 'A' For Rating Actors/Actresses

Your Name Raters Name

The Actor/Actresses Name _____

Instructions: Please rate each actor and actress by circling the number which best describe the way you feel about them. There are five traits that you should consider. On a scale of 1 - 7:

Typicality: to what degree is this person typical of the actor you might see in a corporate/industrial training videotape?

Expressiveness: to what degree does this person incorporate hand gestures, smiles, vocal inflection, varied vocal pacing, varied vocal modulation, facial expressiveness, head movements, and physical movement in their presentation?

Credibility: to what degree is this person believable as an instructor of basic computer skills?

Attractiveness: to what degree is this person pleasing to look at and listen to?

Communicates: to what degree does this person clearly and concisely communicate the course content and procedures?

	Least			Average			Most
Typicality	1	2	3	4	5	6	7
Expressiveness	1	2	3	4	5	6	7
Credibility	1	2	3	4	5	6	7
Attractiveness	1	2	3	4	5	6	7
Communicates content	1	2	3	4	5	6	7

Form For Rating Actors/Actresses page 2

Your Name _____

Apart from the rating scale (please do not look back at your rating sheets), using a "gut feeling", choose one male and the one female for the job.

Sarah Jones	Joe Green
Mary Smith	Tom Smythe
Carol Brown	Jeff Hill
Alice Marshall	Bruce Johnson

Female - _____. Male - _____.

In a few short words or sentences, list your reasons for selecting the actress that you chose.

_____

_____

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In a few short words or sentences, list your reasons for selecting the actor that you chose.

_____

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APPENDIX G
AN INTRODUCTION TO COMPUTERS
ON-SCREEN INSTRUCTOR RATING FORM

Your Name _____

Instructions:

You are about to watch a videotape that contains the same two minute segments from six different videotapes. Watch a segment, then pause or stop the tape and rate the instructor, from one to seven, on the way you feel about that instructors performance in that segment. Then, turn the page on the rating form and watch the next segment. Once again pause or stop the tape and rate the instructor. Continue using this procedure through all six of the segments. Once you have rated a segment, DO NOT GO BACK AND CHANGE A PREVIOUS RATING. Thank you.

Segment #1.

1. How expressive was the instructor in the videotape?

not expressive			expressive		very expressive	
1	2	3	4	5	6	7

2. To what extent did the instructor in the videotape hold your interest?

not at all			kept my interest		very much	
1	2	3	4	5	6	7

3. To what extent did the instructor hold your attention?

not at all			held my attention		very much	
1	2	3	4	5	6	7

4. How energetic was the instructor in the videotape?

was not energetic			was energetic		was very energetic	
1	2	3	4	5	6	7

5. How forceful was the instructor in the videotape?

not forceful			forceful		very forceful	
1	2	3	4	5	6	7

APPENDIX H
FORM FOR CHECKING EXAM VALIDITY

Your Name _____

INSTRUCTIONS: Please read each question carefully. Then, in the space provided, write your impression of the objective, the competency, concept, and/or the skill being tested for by that question.

Question #:

1. _____

_____

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2. _____

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3. _____

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4. _____

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8. _____

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9. _____

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10. _____

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11. _____

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12. _____

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13. _____

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14. _____

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15. _____

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16. _____

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17. _____

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18. _____

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19. _____

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20. _____

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_____.

Instrument to Check

Criterion-Related Validity

A Test on The Use of The Typewriter

Instructions: In the answer blank at the left of each item, write the letter of the answer that correctly completes that item. Check your answers with your instructor.

b 1. A horizontal inch of pica (10-pitch) has (a) 8 spaces, (b) 10 spaces, (c) 12 spaces.

c 2. A horizontal inch of elite (12-pitch) has (a) 8 spaces; (b) 10 spaces; (c) 12 spaces.

c 3. Paper that is 8½ inches wide has (a) 66; (b) 85; (c) 102 pica (12 pitch) horizontal spaces per line.

b 4. Paper that is 8½ inches wide has (a) 66; (b) 85; (c) 102 pica (10 pitch) horizontal spaces per line.

a 5. When keying in single-spaced mode, (a) 0; (b) 1; (c) 2 vertical line spaces are left between lines.

b 6. When keying in double-spaced mode, (a) 0; (b) 1; (c) 2 vertical line spaces are left between lines.

b 7. Elite (12-pitch) type is (a) larger than pica type; (b) smaller than pica type; (c) the same size as pica type.

b 8. When elite (12-pitch) type is used, the paper guide should be set so that the horizontal center of a sheet of paper 8½ inches wide is (a) 42; (b) 51; (c) 66.

b 9. When pica (10-pitch) type is used, the paper guide should be set so that the horizontal center of a sheet of paper 8½ inches wide is (a) 40; (b) 42; (c) 51.

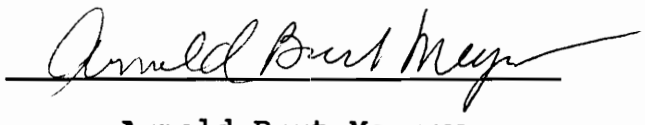
c 10. A standard sheet of typing paper, which is 11 inches long has (a) 33; (b)50; (c)66 vertical line spaces.

by Crawford, T.J., Beaumont, L.R., Erickson, L.W., Robinson, J.W., and Ownby, A.C. (1987).

VITA

Arnold Burt Meyrow was born on March 9, 1947 in Brooklyn, New York. He received a Bachelor of Arts degree in Education from the State University of New York in 1969 and a Master of Arts degree in Educational Communications from Temple University in 1972. Additional course work was completed in film making at American University, and in computer utilization and programming at George Mason University.

Mr. Meyrow has produced and directed videotapes, slide audiotape programs and films since 1968. During that time, he has also taught courses in the Theories and Techniques of Television Production to Corporate, Collegiate, and Public School classes. He currently teaches courses in Television Production at the Arlington Career Center. In addition, he serves as President of the Media Design Corporation. The Media Design Corporation is a professional services company that specializes in the design and production of instructional and educational media programs.



Arnold Burt Meyrow