

The Effects of Visual and Verbal Cues in Multimedia Instruction

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(ABSTRACT)

Various forms of presenting content via computer differ in the number and quality of visual and verbal cues. Many of these cues such as eye contact, tone of voice, appearance, facial expressions, proximity, and gestures have been found to be beneficial to the learning process.

This study seeks to uncover what effects multimedia instruction, which contain a high degree of visual and verbal cues, compared to multimedia instruction, which contains a low degree of visual and verbal cues, may have on college students perception of social presence, satisfaction with their instruction, motivation, and achievement. The relationships among these dependent variables were also investigated.

One hundred and fifty students were randomly assigned to five treatment groups. The treatment groups received three computer based multimedia lessons that included either full visual and verbal cues (video), limited visual and full verbal cues (still picture with audio), limited visual cues and no verbal cues (still picture and text), no visual cues and full verbal cues (audio only), or no visual or verbal cues (text only).

Results show no significant differences among treatment groups regarding social presence, motivation, satisfaction, and achievement. Significant correlations were found between social presence and satisfaction; social presence and motivation; satisfaction and motivation; and motivation and achievement. Correlations for social presence and achievement, and satisfaction and achievement were not significant.

This study suggests that visual and verbal cues in multimedia may not be important for student learning. Further research using different lesson content and a revised social presence scale is encouraged.

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Investigator(s): Carrie Swanay Steffey and Dr. Kathy Cennamo

Department(s): Teaching and Learning, Virginia Tech

Project Title: The Effects of Visual and Verbal Cues in Multimedia Instruction

Source of Support: Departmental Research

Proposal: Graduate Research

1. The criteria for “exemption” from review by the Milligan College Human Subjects Review Board for a project involving the use of human subjects and with no risk to the subject is listed below. Please initial all applicable conditions and provide the substantiating statement of protocol.

 ^{CSS} The research will be conducted in established on commonly established educational settings, involving normal education practices. For example:

 Research on regular and special education instructional strategies;

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Dr. Mark Matson, Vice President for Academic Affairs

8/18/09

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The Effects of Visual and Verbal Cues in Multimedia Instruction

With the growing use of computer technologies, both on-campus and in distance education, faculty and administrators have voiced their concern about the changes in the communication qualities of instruction. McIsaac and Gunawardena (1996) suggest that as traditional education continues to integrate computer technologies to enhance individual learning, the role of the teacher changes from a knowledge source to one that is more of a knowledge facilitator. Now that the Internet is so predominant within education, it seems many instructors are finding ways to place their instruction on the World Wide Web. This may take the form of a main course lesson or serve as supplemental course instruction. The web-based content can be presented as simply text notes or as complex full-motion video of the instructor presenting the lesson.

It is now common for teachers and instructional developers to have access to fairly sophisticated desktop computer systems, which might include multimedia authoring and video compression software. Due to these advances in technology, video clips can and are being used as part of web-based and CD-ROM multimedia instruction. This technology empowers teachers and designers to create their own computer-based lessons for student learning, both on-campus and off-campus through distance learning.

Video Uses in Multimedia

The term multimedia now encompasses the combination of the interactive capabilities of the computer and the audiovisual power of video that was once known as “interactive video.” This combination is considered a powerful means of delivering instruction (Verhagen, 1993). The addition of video to computer-based presentations allowed designers more choices. Suddenly, they had to pay attention to cinematic concerns like theme, treatment, and

photographic quality. When instructional designers tried to implement these video concepts into multimedia, new concerns arose.

Video provides a very powerful resource for learning. Boyle (1997) explains that video clips can greatly enhance the authenticity of a computer-based learning environment. This experience may be the central focus of the system or it may be an important additional resource that students cannot normally access. However, video is a time-based phenomenon. When it starts it “takes the floor” and holds it until it is finished. This aspect of video has to be handled very carefully (Boyle, 1997):

Multimedia involves a balanced integration of many kinds of media objects. Video, however, is a multimedia experience in its own right. It has to be ‘tamed’ and reshaped to become a balanced component in interactive multimedia learning. It is important to give the user control over the video. The learner should be given the maximum amount of control consistent with the learning goals of the context. Video sequences should normally be interruptible. Learners should not be held in a time-trap by a video sequence over which they have no control. If the video is running and the user chooses to leave the screen, the video should automatically stop. The user may be given direct control of the video (p. 179).

The use of video needs to be functionally integrated into the overall learning context. This integration should be realized by a screen layout that balances the impact of video with other objects on the screen (Boyle, 1997). Video should be treated, as far as possible, as a declarative resource. A “declarative” resource is one that can be entered at a number of points and traversed in a number of ways. Technically, the user can jump to any point in the video. But a conceptual frame must be provided to make this a sensible and useful thing to do. The ability to

integrate video as an active resource has immense possibilities. As video becomes less of a purely procedural display and tools are developed to access video and extract information, video will come to be treated more and more as a declarative resource that can be flexibly accessed and used in many ways (Boyle, 1997).

In order to obtain the full benefits of video for learning, the video should be used as an active resource. The learners should not just view the video, they should use it. The importance of actively involving learners in the learning process in any setting is discussed by Bruce and Shade (1995). They note that one of the easiest, most effective ways to maintain learner attention and involvement via compressed video, is to provide information in small components. Ten minutes of information is about the maximum time for a didactic presentation.

Often, multimedia instruction includes full-motion video of an instructor presenting a lesson. Camera angle effects have been studied primarily for their effect on the viewer's perception of an on-screen presenter or actor. Wetzel, et al. (1994) suggested this research was apparently stimulated by the frequent assertions of video and film professionals that particular camera angles suggest certain positive or negative qualities about human subjects that, in turn, affect the subjects' credibility. From an instructional viewpoint, these effects are important whenever an on-screen presenter is used to convey information.

Research confirms (Kraft, 1987) the general belief of practitioners that presenting a human subject from a low angle (i.e., shooting the subject from below eye level) results in viewers perceiving a dramatic character as being taller, stronger, more unafraid, bolder, and more aggressive than presenting the same character shot from a high angle (above eye level). In general, a low-angle shot increases the positive perception of any on-screen character, whereas a

high-angle shot results in a more negative perception by viewers (Mandell, 1973; McCain, Chilberg, & Wakshlag, 1977; Tiemans, 1970).

Experimental data suggest that presenting a narrator, lecturer, or other on-screen “expert” from a half profile angle, so that the speaker is perceived as speaking to a listener just off-screen, increases the speaker’s perceived reliability and expertise, compared to a direct, full-face presentation into the camera (Baggaley & Duck, 1975; Duck & Baggaley, 1975). These findings conflict with other research that eye contact correlates highly with positive evaluations of on-screen presenters in decision-making, instructional, and persuasive settings.

Eye contact is generally associated with increased effectiveness in both televised and live presentations (Arnold, 1990; Breed, 1971; Lin & Creswell, 1989; Rosenkoetter, 1984). In persuasive presentations, such as a commercial or a political speech, eye contact is positively correlated with the presenter’s perceived honesty, forthrightness, energy, and forcefulness (Huddleston, 1985; Kipper, 1988; Merritt, 1984). Velthuijsen, Hooijkaas, and Koomen (1987) found that adult subjects communicating only through an interactive television network preferred a video image that increased the amount of eye contact they could obtain with their remote partner. Acker and Levitt (1987) also found that participants rated their satisfaction with a video teleconferencing system according to the degree of eye contact they obtained from other remote participants, but not to the quality of the decision reached during the conference.

Lin & Creswell (1989) experimented with techniques to improve instructional television. Their results yielded these conclusions 1) presenter eye contact and inserted questions are perceived as useful learning aids in televised lecture presentations, and 2) positive perception of eye contact and inserted questions correlate with high levels of student interest in and satisfaction with televised courses. They concluded, “students with a more favorable attitude toward lecturer

eye contact usually had more positive attitudes toward ITV courses. Students considered ITV lecturers who maintain eye contact to be more effective and more acceptable presenters. With the exception of learning effort, students perceived lecturer eye contact as an important facilitator relevant to better learning motivations and skills (p. 46).”

In this media age, the importance of a student’s positive perception of an instructor must be seen as significant because this perception can affect the student’s attitude toward the instruction. Verbal and nonverbal messages, which teachers employ, may have an important effect on a student’s liking for the teacher, the subject matter, the discipline area, and thus the student’s learning.

Face-to-face communication is generally regarded as an optimal form of human communication. It is sometimes thought that by adding video images to computer-based applications, video mediated communication (VMC) would therefore approximate a face-to-face situation more closely. Though high quality full-motion video images add a rich subset of computer-based communication, the benefits of such relatively expensive information is less clear.

Various forms of presenting content, via computer, differ in the number and quality of visual and verbal cues that they can convey. For example, full-motion video contains more verbal and non-verbal messages than text displays. Many of these verbal and non-verbal cues have been found to be beneficial to the learning process (Arnold, 1990; Baesler & Burgoon, 1987; Bancroft, 1995; DeMeuse, 1987). Cues such as eye contact, tone of voice, appearance, facial expression, proximity, and gestures are all thought to contribute to the perceived *social presence* of a communications medium. Work by Gunawardena (1994) proposes that the issue of social presence may be explored by examining a variety of constructs which may contribute to

the social climate of the classroom. These constructs include intimacy and immediacy. Social presence can be conveyed through visual and verbal cues such as facial expression, direction of looking, proximity, dress, vocal intonation, and gestures. Social presence is thought to affect learner satisfaction, motivation, and cognitive gain. While it is currently thought that distance learner satisfaction plays a significant role in determining the effectiveness and success of a web-based course (Biner, 1993), very little has been done to explore what factors might influence these satisfaction levels (Boverie, Nagel, McGee, & Garcia, 1997). This study seeks to begin research in order to assist in identifying these factors.

This study varied the degree of visual and verbal cues present in multimedia instruction to determine the effects on college students' perception of social presence, satisfaction with the lesson, motivation, and achievement.

Need for the Study

Whether it is the teacher or a trained instructional designer, understanding when multimedia use can be effective and recognizing why it is effective, is essential. As research exposes more understanding about human perception, cognition, and learning, current educational multimedia design principles can be polished and new more effective principles can be developed (Najjar, 1998). The existing guidelines for education multimedia design, according to Najjar, are based almost entirely on the opinions of experts (e.g., Allen, 1973; Arens, Hovy, & Vossers, 1993; Feiner & McKeown, 1990, 1991; Reiser & Gagne, 1982) rather than on the results of empirical research. Therefore, the foundation is weakened on which to make effective educational multimedia design decisions.

“What teachers say and do is an important factor in the teaching and learning process” (Arnold, 1990, p. 4). Studies which deal with teacher nonverbal behavior support the notion that

teachers can intentionally and unintentionally reveal a great deal of information about themselves. Andersen and Withrow (1981) found lecturer nonverbal expressiveness to be a significant positive factor in improving instructional effectiveness. “Given the relative importance of teacher nonverbal expressiveness within face-to-face instruction, it is remarkable how this area of research has been neglected” (p. 344).

It is important to review the role and importance of visual and verbal cues in communications and how these cues might relate to the effectiveness of teaching and learning through multimedia. The results of this study will assist faculty in their decisions regarding what appearance their multimedia instruction should have in order to most benefit the learner. It also may assist in providing empirical evidence for justifying how multimedia technology can be used effectively in education. These findings may have implications for designing instruction where attention must be paid to designing techniques that will enhance social presence. Design techniques for presenting distance instruction via the Internet might also benefit greatly from the results of this study.

As Yildiz and Atkins (1993) clearly point out, “educators and decision-makers at all levels need to see convincing evidence of the claimed instructional effectiveness of multimedia applications before they make the considerable investment in hardware, courseware, and teacher training that successful integration requires” (p. 133). The purpose of this study is to examine social presence theory and the effects that visual and verbal cues may have on perceived social presence of multimedia instruction. The study also will investigate the degree to which this perception is related to student satisfaction, motivation, and achievement with the multimedia instruction.

Review of Literature

Introduction

Educators on every level are finding themselves in the midst of a technological wave, which is continuing to take hold of college campuses throughout our country. Some educators find themselves picking up a surfboard, maybe for the first time, and paddling out to ride this wave. Others choose to stand on the shore only to watch those daring souls.

Computers are now in most classrooms. On any school day you might find a student interacting with a computer by surfing the Internet or engaging in an educational lesson using a multimedia CD-ROM. Increasingly, text-publishing companies are including multimedia CD-ROM's with their textbooks. Sometimes this form of instructional technology must be used with the text and other times it serves as a supplemental tool for student learning.

Web-based distance learning courses also represent a common use of multimedia. This use of multimedia for educational purposes is growing rapidly, thus, the need for increased multimedia research. Fueled by several factors, this increase may be due to: "1) a decrease in multimedia computer costs, 2) learners prefer to have multimedia in their educational situations, and most importantly, 3) people believe that educational multimedia improves learning" (Najjar, 1996, p. 4).

According to Wetzel, Radtke, and Stern (1994), research to support the effectiveness of multimedia as a positive influence in the learning process, lags behind. It is apparent the role that nonverbal behaviors play in creating positive attitudes toward instructors and courses. These behaviors are likely to differ across various forms of media, such as teleconferencing, live interactive television, and multimedia instruction. It can be speculated that cues reflecting responsiveness to questions and feedback (i.e., forward leans, nods, and increased eye contact)

would be key nonverbal behaviors when utilized in these various forms of media. No matter what communication mode is chosen, effective delivery of the message requires careful selection of content and applying appropriate presentation techniques (Ricker & Hartsell, 1998).

Defining Multimedia

Multimedia is a term that has been used by educators and those in the industry for many years. It has numerous definitions throughout the literature. In the 1960's, the term multimedia meant the use of several media devices in a coordinated fashion (e.g., synchronized slides with audiotape); it also described the combined use of several media, such as films, video, and music. Najjar (1996) described multimedia as the simultaneous presentation of information using more than one mode of information transmission. It combines the use of various media such as text, graphics, animation, pictures, video, and sound, to present information. The term also has been used to refer to everything from slide shows to extravaganzas complete with multiple monitors, animation, video, sound, and text. Borsook and Higginbotham-Wheat (1992) state:

...it would be easy to remember that multimedia stands for multiple media except that the term media can mean many things. 'Media' can include slides, audio tapes, videotapes, videoconferencing, animation, films, music, voice, paper, or even someone shouting through a megaphone. Media can be instructional or not; it can be interactive or not; and it can be computer-based or not (p. 5).

Poole (1995) explains that multimedia has become closely associated with the computer-controlled instructional delivery systems. Instead of using several devices to present multiple forms of media, these media are now presented using one device (Kozma, 1987). Moore et al. (1996) augment this point by noting it is obvious that the computer plays a central role in the organization of the learning environment. Lee (1996) describes computer-mediated multimedia

(CMM), as the integration of two or more communication media, controlled or manipulated by the user via a computer, to present information. CMM can be combinations of text, images, animation, sound, color, and video in a single, computer-controlled presentation. The computer also allows the element of interactivity. Therefore, there has been a virtual explosion of the use of computer-based multimedia learning (Bagui, 1998). It can then be speculated that as technology and software continue to improve and costs decrease, multimedia usage will continue to increase.

Computer-mediated Communications

Studying computer-mediated communication (CMC), from a socio-psychological perspective, recently has been emphasized in international communication research (Jones, 1995; Spears & Lea, 1992; Walther, 1992). Three approaches to analyzing the social psychological dimension of mediated communication from the “social cues perspective” were discussed by Spears and Lea (1992): 1) the social presence model developed by Short, Williams, and Christie (1976); 2) Rutter’s (1987) cuelessness model; and 3) the reduced social cues approach put forth by Kiesler, Siegel, and McGuire (1984). According to Spears and Lea (1992), of the three, the most influential theoretical framework is the social presence model presented by Short, Williams, and Christie (1976). They postulated that the critical factor in a communication medium is its “social presence,” and defined this as the “degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships, in other words, the degree to which a person is perceived as a ‘real person’ in mediated communication” (p. 65).

Social climates differ greatly between traditional classrooms and mediated instructional systems. Instructional media vary in the degree to which they can transmit social presence, and these variations are important in determining the way individuals interact and react. The capacity

of the medium to transmit information about facial expressions, direction of looking, posture, and dress, all contribute to the degree of social presence perceived through a communications medium. Social presence can be conveyed both by the medium - video can convey a higher degree of social presence than audio - and by the people who are involved in using the medium for interaction. For example, instructors who humanize the classroom climate may convey a higher degree of social presence than those who do not (McIsaac & Gunawardena, 1996).

The importance of examining social factors that impact communication and learning in a mediated communication system has been emphasized in recent studies conducted by Feenberg (1989), Hackman and Walker (1990), Sanders and Wiseman (1990), and Walther (1992). One of the theories that has been used in communication research and educational psychology to explain the social context of mediated communication-based interaction, is the theory of social presence (Short, Williams, & Christie, 1976). It is this theory that will provide the foundation for this investigation.

Social Presence

Short et al. (1976) define social presence as a quality of the medium itself and hypothesize that communications media vary in their potential to convey social presence, and that these variations are important in determining the way individuals interact and react. Short et al. (1976) believe that social presence is an important key to understanding person-to-person mediated communications. It varies among different media, it affects the nature of the interaction, and it interacts with the purpose of the interaction to influence the medium chosen by the individual who wishes to communicate. They hypothesize that:

The users of any given communications medium are in some sense aware of the degree of social presence of the medium and tend to avoid using the medium for certain types of

interactions; specifically, interactions requiring a higher degree of social presence than they perceive the medium to have (p. 65).

The capacity of the medium to transmit information about facial expressions, direction of looking, posture, dress, and nonverbal cues all play a part in the degree of perceived social presence of any communications medium (Gunawardena, 1994). The individual sees social presence as being a cognitive synthesis of several factors present in a particular medium (Short et al., 1976, pp. 45-59):

- *Non-verbal cues*-In a normal face-to-face interaction, the participants exchange in addition to the verbal material, a range of non-verbal cues such as facial expression, direction of gaze, posture, dress and physical distance.
- *Proximity and orientation*-Physical separation is perhaps the factor which is most obviously varied when communication is by a telecommunications link rather than face-to-face. Proximity refers to the physical distance at which people choose to converse. People select a particular orientation for their conversation just as they select a particular distance (e.g., sitting opposite one another, side-by-side). Orientation may be important to the design of video systems: video systems impose an orientation of being opposite one another.
- *Physical appearance*-This constitutes a very important source of information for individuals who do not know each other. Initial judgments (apart from what is known in advance) must be made entirely on the basis of physical appearance.
- *Dynamic non-verbal cues from the trunk and arms*-This refers to cues from below the neck (e.g., posture, hand and arm positions).
- *Facial signals*-Information can be derived from a person's facial expression (e.g., surprised, happy, sad, and angry).
- *Direction of eye gaze*-In a two-person conversation the direction of one's eye's assists in the control of conversations (e.g., who's turn to speak). It also provides a measure of an individual's understanding or confusion.
- *Mutual gaze and Argyle's intimacy equilibrium*-Argyle (1969) suggests that one function of looking is to establish a relationship; for example, a person will look more if he wants to establish a closer relationship). Eye contact (mutual gaze) is thought to be particularly significant. Argyle and Dean (1965) postulate an optimum level of 'intimacy'. 'Intimacy' is a function of eye contact, proximity, conversation topic and so on; changes in one will produce compensating changes in the others.

- *Comparisons of verbal and visual communication*- Much of the non-verbal information conveyed by the visual channel is also conveyed by the audio channel through tone of voice, choice of words, pauses, and similar behaviors. If there is complete duplication of the message conveyed through both the visual and verbal channels (redundancy in the information) the social presence of a medium would not be effected by removing the visual channel. At the other extreme, if there is no duplication of information between channels, the effects of removing the visual channel would depend on the relative importance of the visual and auditory cues.
- *Multi-channel communication*-Birdwhistell (1970) pointed out that while communication is a continuous process made up of isolable discrete units, these units are multifunctional, they have distinguishable contrast meaning at one level, and cross referencing function at another. None of these units has meaning in and of itself. In attempting to assess the functions of the visual channel, it is therefore dangerous to confine attention at any one time to individual cues such as posture, eye-gaze, proximity and the like. These channels do interact with one another.

Each individual determines the importance for each of the above factors. Therefore, social presence of a medium is seen as a perceptual or attitudinal dimension of the user, a mental set toward the medium. The conception of social presence is seen not as an objective quality of the medium, though it must merely be dependent upon the medium's objective qualities, but as a subjective quality of the medium (Short et al., 1976).

Social presence depends upon not only the visual non-verbal cues transmitted, but also more subtle aspects, such as the apparent distance of the other (influenced, perhaps, by voice volume) and the "realness" of the other (influenced, perhaps, by the fidelity of speech reproduction), (Short et al., 1976). Differences in the perceived social presence of various media are not simply that some media will be "better" or more "effective" than others. Short et al., (1976) hypothesized that the suitability of any given communication medium for a specified type of interaction will depend upon two things: 1) the degree of social presence possible through the medium, and 2) the degree of social presence required by the task.

A study completed by Champness (as cited in Short et al., 1976) had 72 subjects use three different types of media (face-to-face, closed-circuit television, and an audio system) to discuss a decision-making problem. Pairs of subjects had three conversations, one over each medium. After each conversation they were asked to rate the medium. Results revealed that there is some indication that social presence is a good discriminator between communications media. The ratings were such that face-to-face was rated the most sociable medium, video was rated the next most sociable, and the audio medium was rated the least sociable.

Champness (as cited in Short et al., 1976) conducted a more stringent experiment between two variations of the same telecommunications system. Three media were compared: audio, video, and face-to-face media were used in his first study. However, this experiment used three subjects, two in one room, and one in another. In the video condition, the single subject viewed a video picture showing the other two participants, their chairs and the small table at which they sat. The two subjects who shared a room viewed a head-and-shoulders video picture of their colleague. It was hypothesized that the video system, as perceived by the single subject viewing two small images of his colleagues, would have lower social presence than the system as perceived by the two subjects viewing a close-up picture of their colleague. The results revealed higher scores given to the video medium by the two subjects, who saw a close-up picture, than by the lone subject viewing the picture with two small images of his colleagues.

These experiments support Short, Williams, and Christie's (1976) hypothesis that communications media can be distinguished by their degree of social presence. They conclude that this concept does indeed have value.

Intimacy and Immediacy

It is Gunawardena and Zittle's (1997) study which attributes social presence to the two variables of "intimacy and immediacy." Physical distance, eye contact, and smiling are all

factors which contribute to intimacy, whereas immediacy is the measure of psychological distance that a communicator puts between himself or herself and the object of his/her communication (Wiener & Mehrabian, 1968).

Intimacy factors between two people can include: physical distance, eye contact, smiling, and personal topics of conversation. Short et al., (1976) suggest that perceived social presence of the communications medium be included in the list of factors contributing to intimacy.

Immediacy is related to social presence in a different way. A person can convey immediacy verbally or non-verbally (e.g. by physical proximity, voice inflection, formality of dress, and facial expression). Heilbronn and Libby (1973) have suggested that immediacy and non-immediacy also can be conveyed by choice of communication medium. Thus, face-to-face communication implies higher immediacy than the telephone or interactive television. This type of immediacy is termed “technological immediacy” as opposed to “social immediacy” which is conveyed through speech and associated non-verbal cues.

It is possible that technological immediacy and perceived social presence may be seen as being very similar, but according to Short et al. (1976), there are important differences. They point out, “for any given medium of communication (e.g. telephone) and situation (e.g. long-distance call), immediacy may vary even when social presence does not. For example, a person making a call may choose to speak in such a manner as to give an impression of aloofness and ‘distance’ (non-immediacy) or he may choose to adopt an attitude of informality and comradeship. In either case, the degree to which he is perceived as a real person, the social presence afforded by the telephone, will be the same” (p. 73).

Immediacy, which Mehrabian (1969) defines as communicative behaviors which enhance closeness to another, is related to student attitudes toward instruction and toward the instructor. It

has been empirically supported (Andersen & Andersen, 1982; Giglio & Lustig, 1987).

Immediate behaviors can include such things as reduction in physical distance, forward leans, head nods, and increased eye contact.

Factors Affecting Social Presence

With the dawn of a new century, more and more institutions are moving toward multimedia systems integrating a combination of technologies both synchronous and asynchronous (McIsaac & Gunawardena, 1996). The Internet has certainly become an important vehicle in which teachers can reach students with instructional material. Users' comments about new media frequently relate to what we conceptualize as social presence: "more realistic," "three-dimensional, gives feeling of group," "vividness of expression" and "maintains one's sense of individuality." Champness (as cited in Short et al., 1976) in an evaluation of a commercial video system, had users rate their agreement or disagreement with a number of such statements collected from interviews with users of other systems. Social presence was clearly an important factor in the study.

Even the crude measures of social presence used in the laboratory, so far, suggest that reliable differences between media can be observed. The greatest differences seem to occur between the visual and the non-visual media. Nonverbal communication is a term commonly used to describe all events of human communication that are not spoken or written words. Knapp (1980) suggests that nonverbal communication should not be studied as an isolated unit but as an inseparable part of the total communication process. The importance of nonverbal communication is important simply because of the role it plays in the overall communication system. It can provide numerous informational cues in a variety of situations. The role of nonverbal behaviors in human perception and performance appraisal has been well documented

in the social psychological literature (DeMeuse, 1987). Research on non-verbal behavior focused on the variables of eye contact, posture, gestures, and paralinguistic cues (pauses in speech and tone of voice).

The importance of speaker or presenter eye contact during visual presentations has long been recognized in studies of non-verbal communication. Studies have revealed that speakers with effective eye contact are rated as being more natural, friendly, and sincere (Kleck & Nuessle, 1968). They also are considered more attractive and persuasive (LaCrosse, 1975). Speaker or presenter gaze has been found to help draw listener attention (Harper, Wiens, & Matarazzo, 1978) or initiate interactions between the speaker/presenter and the listener (Knapp, 1978). Breed, Christiansen, and Larson (1972) found that students who received eye contact from the lecturer had increased lecture comprehension. Studies related to the learning process have suggested that students respond favorably when presenters maintain effective eye contact and when questions are interspersed in learning materials, directing learner attention to appropriate content (Faw & Waller, 1976; Knapp, 1978; Hannafin, 1985).

Stuart's (1995) book on "How to Be an Effective Speaker," discusses at length the importance of eye communication. She states that, "eye contact is one of the most important factors toward creating a good speaker" (p. 62). People use their eyes to give messages of uninterest. Eye contact denotes authority. Powerful people give more eye contact than those who are less confident. Many emotions can be expressed through eye contact.

Stuart (1995) also warns against the consequences of not making effective eye contact. When speakers do not look at their audience, the audience feels the speaker is uninterested in them, or in the audience's reaction to their talk. "If you don't pay attention to your audience, they will not pay attention to you" (Stuart, 1995, p. 63). The importance of first impressions and eye

contact are discussed in the work of Stuart (1995) and Ailes and Kraushar (1988). If you are afraid to look at the members of your audience (for example, if you never look up from reading a text), they will not be very impressed with you regardless of the importance of your message.

Williams (1977) summarized 30 experiments that compared face-to-face meetings with electronic meetings and concluded that eye contact plays an important role in interaction.

LeCompte and Rosenfeld (1971) performed a study in which videotape of an experimenter reading task instructions to subjects, either did not look up at the camera at all or looked up on two specific occasions. Subjects then completed five multiple-choice questions related to content and 18 questions related to evaluating the subjects' impressions of the experimenter. Results concerning the content were found to be small. The author regards this small finding due to the low number of content questions to be analyzed. This study also concluded that as small a difference as two glances can influence the subjects' impressions of an experimenter/presenter.

Droney and Brooks (1993) and others (Amalfitano & Kalt, 1977; Brooks et al., 1986; Napieralski et al., 1995; Wheeler et al., 1979; Wiens et al., 1980) note that eye contact is a dominant nonverbal cue which conveys positive traits like a sense of control, confidence, reduced anxiety, and high self-esteem. Brown and Keller (1979) suggested that eye contact is the single most important feature of non-verbal communication in the conveying of interpersonal meaning. Such movements of face and eyes are often considered critical indicators of initial impressions and estimations of personality (Groffman, 1998).

What teachers say and do is an important factor in the teaching and learning process. Eye contact is just one of many nonverbal behaviors which can have an effect on students in various ways. One could say that a very large portion of classroom communication is nonverbal. Like everyone in any other profession, teachers communicate their attitudes by facial expression, tone

of voice, eye contact, posture, gestures, territory, clothing, and by their overall classroom behavior (Arnold, 1990). Knapp (1980) proposes that much of the ability we have in sending and receiving nonverbal signals is derived from motivation, attitude, observation, and experience.

Nonverbal communication is used in fundamental areas of our daily life such as politics, medicine, the arts, advertising, television, education, job interviews, and even courtship (Bancroft, 1995). Bancroft suggests that estimates show that in a normal two-person conversation, the verbal components carry less than 35 percent of the social meaning of the situation; more than 65 percent is carried on the nonverbal level, although no formal citation was provided to back this claim. Nonverbal behaviors, therefore, could account for a significant proportion of the communicative meaning in human interaction (Baesler & Burgoon, 1987).

Studies which deal with teacher nonverbal behavior support the notion that teachers can intentionally and unintentionally reveal a great deal of information about themselves. Teachers are often unaware of their nonverbal behaviors (Arnold, 1990). Dunning's (1971) study led him to conclude that when the nonverbal signal is understood, its message, paired with verbal content, makes the interpretation of the senders meaning much more complete. Anderson and Withrow (1981) found lecturer nonverbal expressiveness to be a significant positive factor in improving instructional effectiveness. "Given the relative importance of teacher nonverbal expressiveness within face-to-face instruction, it is remarkable how this area of research has been neglected" (p. 344).

Subtle nonverbal influences in the classroom can sometimes have dramatic results. According to Neill (1991) enthusiastic instructors use more nonverbal signals, such as gestures and range of intonation. Andersen's (1979) study found that half of the variation in students' liking for teachers was associated with the kind of nonverbal communication the teachers

employed. Those teachers who use positive gestures, eye contact, and smiles to produce interpersonal closeness, reduce psychological distance and have a positive impact on student performance (Neill, 1991).

According to Mehrabian (1971), liking is distinguished from disliking and positive attitudes from negative attitudes toward another or others by more forward lean, a closer proximity, more eye gaze, more openness of arms and body, more direct body orientation, more touching, more postural relaxation, and more positive facial and vocal expressions.

The ability to send and receive (encode and decode) nonverbal cues accurately is essential for developing social and professional competence. Effective senders of nonverbal signals are outgoing, active, and popular. According to research findings, “individual teachers who were rated ‘excellent’ at their jobs, did well on the Profile of Nonverbal Sensitivity (PONS) instrument. This instrument measures a person’s nonverbal decoding ability” (Knapp, 1980, p. 231).

Arnold and Roach (1989) stated that much of the research validates the importance of nonverbal behavior: When incongruity occurs between the verbal and nonverbal message sent out by a teacher, that is, when contradiction exists between words and actions, the nonverbal message takes precedence which has an impact on students. Thus, students appear to find the nonverbal communication more reliable and tend to believe the nonverbal cues are more revealing than verbal ones.

The effects of non-verbal performance characteristics and verbal content in the television context apparently interact and it is probable that the nonverbal impact of a presentation may divert attention from the verbal meaning conveyed. “At the very least it may be inferred that when nonverbal and verbal content are judged simultaneously, they can either reinforce one

another or conflict” (Baggaley, 1980, p. 54). Baggaley (1980) conducted numerous experiments in this area to not only demonstrate that such conflicts may occur but also to identify their determinants, so that they may be controlled and hopefully avoided in applied communication contexts. The results were directed toward television producers to recognize and anticipate verbal and nonverbal effects when using them to educate and inform.

Viewers clearly form very detailed assessments of the credibility of information presented on TV on the basis of extremely subtle visual cues. In assessing the extent to which audience responses may be influenced by particular production techniques, TV personnel should recognize the high priority of perceived credibility in viewers’ regard, and should continually scan the images they produce for cues capable of denoting it. Even the most tenuous of detail may cue specific attributions in ambiguous situations (Baggaley, 1980, p. 168).

Verbal and nonverbal cues should be harmonized. The teacher’s body language and tone of voice are instrumental in the educational process (Bancroft, 1995). Therefore, classroom learning can be enhanced if the correct nonverbal messages are sent. Teachers can sometimes overlook the most important feature, their behavior, because they are concerned with the large class size, uncomfortable, or unpleasant classrooms. This can be a crucial factor, for it determines more than anything else the success of the teaching-learning process. Teaching is a craft, and as with any craft, one’s performance can be bettered by giving careful attention to detail (Arnold, 1990).

Interpersonal perceptions and communicative relationships between teachers and students are crucial to the teaching-learning process, and the degree of immediacy between teacher and students is an important variable in those relationships (Andersen, 1978, 1979; Richmond,

Gorham, & McCroskey, 1987). The early work on immediacy in instruction was an outgrowth of efforts by faculty and students at West Virginia University to bring together the research literature in the field of communication with that in the field of education. More specifically, this research focused on identifying teacher behaviors associated with effective classroom instruction (McCroskey & Richmond, 1992). Several studies have been conducted relating traditional classroom immediacy to students' attitudes toward the course, student motivation, and cognitive gain.

McCroskey and Richmond (1992) bring forth a concern expressed by instructional communication researchers: Can these findings be translated into real improvements in the classroom? Finding that immediate teachers produce more learning in students is an interesting outcome of 15 years of intensive research. But it is a relatively meaningless finding if immediacy is purely personality based and cannot be changed. Fortunately, a number of studies (Richmond, McCroskey, Plax & Kearney, 1986) have found that teacher nonverbal behaviors are subject to change through appropriate instructional intervention. Based on the results of the literature, research on immediacy in the classroom, "these findings can be translated to real improvements in teacher behavior and real increases in student learning" (McCroskey & Richmond, 1992 , p. 115). It also appears that teacher immediacy may be one of the most critical variables in determining teaching effectiveness.

Effects of Social Presence, Intimacy, and Immediacy on Learner Satisfaction

Satisfaction is an important aspect of student learning, as Keller (1987) ARCS (Attention, Relevance, Confidence, and Satisfaction) model reveals. To have a continuing desire to learn, the student must have a sense of satisfaction with the process or results of the learning experience. This satisfaction can result from extrinsic or intrinsic factors. Extrinsic factors includes

opportunities for advancement, certificates, and other material rewards. Intrinsic factors are sometimes overlooked, but are still very powerful. People enjoy the feelings of improved self-esteem and achievement that may result from interacting with other people and having their views heard and respected. Also, it can be the result of successfully completing a meaningful learning activity (Keller, 1987).

It is verbal and nonverbal messages, which teachers employ, that have an important effect on students' liking for the teacher, the subject matter, the discipline area, and thus the students' satisfaction with the course. In a normal college classroom environment, communication is the central element in teaching. The use of nonverbal immediacy in traditional classrooms has been found to be associated with positive attitudes (Andersen, 1979; Andersen, 1981), and favorable student ratings of the overall quality of instruction (Moore, Masterson, Christophel, & Shea, 1996).

Studies by Norton (1983) reveal evidence showing perceived teacher effectiveness to be related to a teacher's communication style. Their finding also showed that an instructor's perceived adeptness in communication was highly related to a student's evaluation of the overall performance of that instructor in the classroom.

Andersen's (1978, 1979) studies also found a significant relationship between nonverbal teacher immediacy and students' attitudes toward the course. "The more immediate a person is, the more likely he/she is to communicate at a close distance, smile, engage in eye contact, use direct body orientation, use overall body movement and gestures, touch others, relax, and be vocally expressive" (p. 548). Immediacy predicted 46% of the variance in students' attitudes toward the instructor, 20% of the variance in students' attitudes toward the content, and 18% of the variance in students' behavioral commitment.

Street and Wiemann (1987) and Plax, Kearney, McCroskey, and Richmond's (1986) research relating to immediacy and students' attitudes toward the instructor is very consistent. They observed that relationships appear to be linear; the higher the immediacy of the teacher, the more positive students were toward the course.

Gunawardena and Zittle's (1997) study suggests that attention must be given to design factors which will enhance the social and emotional experience of the distance learner. The purpose of their study was to measure how effective social presence is as a predictor of overall learner satisfaction in a computer conference environment. The study also examined the reliability of the social presence scale developed for the research to provide descriptive measures to inform future studies of this type. An ancillary purpose of the study was to examine whether or not there was an interaction effect between participants' use of emoticons (Icons that express emotion, (i.e., :-)) or :-(), social presence, and satisfaction. The study, conducted in the fall of 1993 provided a forum for graduate students in distance education to share and discuss research and experience distance education by using CMC. Gunawardena and Zittle (1997) found that social presence is a strong predictor of satisfaction in a computer conference. Saba (1998), as a result of reviewing their study stated, "the importance of social presence for mediated communication in distance education cannot be overstated" (p. 3).

One of the biggest concerns of distance education is that it is devoid of human contact. The same could be said for multimedia-based instruction. These concerns are magnified when one considers the large body of literature on the importance of nonverbal behavior in the classroom. Guerrero and Miller (1998) cite numerous studies, which demonstrate that a teacher's use of nonverbal behavior, and in particular, nonverbal immediacy, is related to a student's perception of teaching effectiveness.

Effects of Social Presence, Intimacy, and Immediacy on Motivation

A process that includes specific directive and stimulating properties is describing motivation (Brophy, 1983; Wlodkowski, 1978). This can lead students to arousal and investigative behaviors, give direction and purpose to their behaviors, allow behaviors to persist, and lead to choices of preferred behaviors (Ames, 1986; Dweck, 1986; Weiner, 1979).

According to Brophy (1987), student motivation to learn can be conceptualized either as a trait or state orientation. Trait motivation is a general, enduring predisposition toward learning, while state motivation is an attitude toward a specific class. Motivation toward learning is often stimulated through various forms of modeling, communication of expectations, direct instruction, or socialization by teachers (Brophy, 1987). Wittrock (1978) states that this motivational schema includes aspects of both attitudes and cognitive elements through development of instructional goals and strategies. Thus, teachers can be active agents within the educational environment and, therefore, capable of stimulating the development of student motivation toward learning (Christophel, 1990).

A review of literature indicates that social presence and immediacy seem to affect learner satisfaction with a course and satisfaction with the course may affect student motivation toward the course (Christophel, 1990; Frymier, 1993). Students who began a course with low motivation experienced increased levels of motivation later in the semester when exposed to a highly immediate teacher, according to Frymier's (1993) study. Those students who began the semester with high motivation maintained high motivation regardless of the level of teacher immediacy. Therefore, this research provides support for recommending the use of immediacy techniques to

make a difference in student motivation. “Immediacy (verbal and nonverbal) is clearly a useful tool in the classroom for enhancing student motivation” (Hurt, Scott, & McCroskey, 1978, p. 462).

Effects of Social Presence, Intimacy, and Immediacy on Cognitive Learning

The effects of immediacy on the cognitive domain of learning are less clear. There are a few studies which support positive effects on cognitive learning for some immediacy variables.

Street and Wiemann’s (1987) research concluded that immediacy behaviors are substantially associated with cognitive learning. They found the most important behaviors to be vocal expressiveness, smiling at the class, and having a relaxed body position. Looking at the class (instead of at the board or notes) and moving around the classroom rather than standing behind a desk or podium, seemed to make meaningful contributions as well. Richmond, Gorham and McCroskey (1986) and Plax, Kearney, McCroskey and Richmond (1986) also found nonverbal teacher immediacy behaviors substantially associated with cognitive learning at the college level.

Some research results indicate a definite relationship between immediacy and cognitive learning. Andersen and Andersen (1982) summarize several studies in which the examination of specific nonverbal immediacy behaviors such as eye contact, vocal inflection, gestures, proximity, smiling, and touch have been positively related to various measures of cognitive gain. Andersen (1979) argues that in most instances immediacy increases arousal, setting the stage for cognitive learning.

The current study stems from Kelley and Gorham’s (1988) discussion regarding a four-step model for a direct relationship between immediacy and cognitive learning. Their first assumption is that cognitive learning is directly linked to memory. Secondly, attention is a

necessary precursor for recall: information, which has not been attended to, cannot be encoded for storage, and will be unavailable for retrieval. Thirdly, arousal affects attention. And lastly, immediacy is related to arousal.

Kelley and Gorham (1988) provided support for this position when they found a positive relationship between immediacy, as defined by eye contact and physical proximity, and short-term cognitive recall. In experimental conditions involving high physical immediacy and eye contact, subjects' test scores were higher. The study concludes that teachers who use such nonverbal behaviors are likely to enhance cognitive outcomes. The greatest recall occurred with eye contact and high physical proximity. Eye contact, with low proximity or high proximity with no eye contact, produced moderate recall results. No eye contact and low proximity produced the worst recall results.

Scott and Nussbaum (1981) found students' perceptions of teachers' communication styles to be associated significantly with student achievement. Guerrero and Miller (1998) provide findings which have shown that the use of nonverbal immediacy in the traditional classroom is associated with cognitive learning (Richmond, Gorham, & McCroskey, 1987), and information recall (Kelley & Gorham, 1988).

Summary

In conclusion, this review of literature indicates that social presence and immediacy are important aspects of student learning. More specifically, the review of the literature suggests that various visual and verbal cues have a positive effect on students' perceptions of social presence (Anderson & Withrow, 1987; Gunawardena & Zittle, 1997; Saba, 1998). Perceptions of social presence may be influenced by the instructor's facial expressions, gestures, proximity, appearance, vocal inflections, use of humor, personalized examples, and questioning strategies

(Arnold, 1990; Baesler & Burgoon, 1987; DeMeuse, 1987). When students perceive a high degree of social presence, researchers have found that they may be more satisfied with the instruction (Andersen, 1979; Biner, 1993; Gunawardena & Zittle, 1997). If there is a perception of increased social presence and an increase in satisfaction due to that perception, an increase in motivation may follow (Knapp, 1980). Motivation also has been linked to increases in student achievement or cognitive gain. Therefore, if a student has increased motivation by the instructional treatment, then the student's achievement may be positively effected (Breed, Christiansen, & Larson, 1972; Neill, 1991). The review of literature suggests relationships among variables should be investigated.

The results of this study will assist faculty in their decisions regarding what appearance their multimedia instruction should have in order to most benefit the learner. It also may assist in providing empirical evidence for justifying how multimedia technology can be used effectively in education. These findings may have implications for designing instruction where attention must be paid to designing techniques that will enhance social presence. Design techniques for presenting distance instruction via the Internet might also benefit greatly from the results of this study. Therefore the following hypotheses must be investigated:

Primary Hypothesis

H₁ The means for achievement, social presence, motivation, and satisfaction are different across treatments which vary in the degree of visual and verbal cues.

Secondary Hypotheses

H₂ The higher the degree of social presence perceived by the student, the higher the level of satisfaction with the computer-based instruction.

- H₃ The higher the degree of social presence perceived by the student, the higher the level of motivation toward the computer-based instruction.
- H₄ The higher the degree of social presence perceived by the student, the higher the level of achievement from the computer-based instruction.
- H₅ The higher the degree of satisfaction perceived by the student, the higher the level of motivation toward the computer-based instruction.
- H₆ The higher the degree of satisfaction perceived by the student, the higher the level of achievement from the computer-based lesson.
- H₇ The higher the degree of motivation by the student, the higher the level of achievement from the computer-based instruction.

Methodology

This research varied the visual and verbal cues present in multimedia computer-based instruction to determine the effects of these cues on student perceptions of social presence, satisfaction with their instruction, motivation, and achievement. The relationships among the dependent variables of social presence, satisfaction, motivation, and achievement were also investigated.

Participants

There were 150 participants in this study. The participants consisted of 56 (37%) college freshmen, 37 (25%) sophomores, 28 (19%) juniors, and 29 (19%) seniors. Ninety-eight (65%) of the participants were female and 52 (35%) were male, with an average age of 19.5.

The study was conducted during the fall semester. Participants were enrolled in a general speech course required by all students attending a small liberal arts college in the southeast. Students were asked to participate in this study as part of their overall class instruction, but were given the option not to participate. Students who chose not to participate were given a transcript of the instructional lessons. They were also given release time in which they read the transcripts in lieu of class. Those choosing to participate in the study were given one and one-half hours release time. Extra credit was given to those students who participated.

Instructional Materials

The study consisted of five treatments designed to vary levels of visual and verbal cues within the computer-based instruction. The review of literature indicated that visual and verbal cues such as facial expressions, gestures, proximity, appearance, vocal inflection, humor, personalized examples, and raising questions might affect a student's perception of the social presence of a speaker (Arnold, 1990; Baesler & Burgoon, 1987; DeMeuse, 1987). The treatments

varied in the degree to which they conveyed facial expressions, gestures, proximity, appearance, and vocal inflections. The use of humor, personalized examples, and raising questions was the same for all treatments.

For a general overview of these treatment variations see Figure 1. Additional details on each version will be provided in the discussions of individual treatments.

Treatments	Non-Verbal				Verbal	
	Facial Expressions	Gestures	Proximity	Appearance	Vocal Inflections	
Treatment A	✓	✓	✓	✓	✓	
Treatment B			✓	✓	✓	
Treatment C			✓	✓		
Treatment D					✓	
Treatment E						

Figure 1. Treatment variations.

Note: ✓ indicates represented cue in treatment variation, whether non-verbal or verbal.

Each treatment consisted of three computer-based lessons followed by on-line achievement tests and an on-line questionnaire. The three instructional lessons varied in length; lesson one was 4 minutes and 56 seconds, lesson two was 16 minutes and 46 seconds, and lesson three was 15 minutes and 44 seconds. The instructional information in the three lessons was a continuation of a class topic on Inclusive and Exclusive language. Each lesson was built upon information from the previous lesson. Objectives for each of the three lessons are listed below.

Lesson 1 Objectives

- L1-1. Students will be able to define Inclusive language.
- L1-2. Students will be able to define Exclusive language.
- L1-3. Students will demonstrate their understanding of Inclusive language by choosing examples of its usage.
- L1-4. Students will demonstrate their understanding of Exclusive language by choosing examples of its usage.
- L1-5. Students will identify four reasons why people might engage in Exclusive language.
- L1-6. Students will identify the three main types of Exclusive language.
- L1-7. Students will recognize the correct meaning of the term “egocentricity.”

Lesson 2 Objectives

- L2-1. Students will demonstrate their understanding of sexist language by choosing an example of its use.
- L2-2. Students will list four forms of sexist language.
- L2-3. Students will demonstrate their understanding of gender-biased references by choosing an example of its use.
- L2-4. Students will demonstrate their understanding of descriptor references by choosing an example of its use.
- L2-5. Students will demonstrate their understating of sex role stereotypes by choosing an example of its use.
- L2-6. Students will demonstrate their understanding of preferred terms of address references by choosing an example of its use.

Lesson 3 Objectives

- L3-1. Students will demonstrate their understanding of racist language by choosing examples of its usage.
- L3-2. Students will demonstrate their understanding of heterosexist language by choosing examples of its usage.
- L3-3. Students will be able to define racist language.
- L3-4. Students will be able to recognize the attributes of a good communicator.
- L3-5. Students will be able to demonstrate their understanding of Exclusive language by choosing examples and non-examples of its usage.

Design and Development of Materials

In order to produce the materials used in this study, a female speech professor from another institution was videotaped as she presented a lecture on Inclusive and Exclusive Language. This allowed the participants in the study to receive their instruction from someone they did not know and of whom they had not yet formed an opinion. They saw the instructor for the first time during the testing.

The instructor and researcher met prior to the class taping and agreed that the lecture would be given to a live class as one continuous lecture. The instructor gave the lecture in such a manner that it could easily be divided into three separate lessons needed for the experimental study (see Appendix A). Miller (1956) described a process called chunking. This process helps to increase the amount of information that can be stored in working memory. By breaking this

instruction down into three individual lessons. The participants were able to review each lesson and then be tested on the information. The review of literature also revealed that the most effective way to maintain learner attention and involvement via compressed video is to provide information in small components. Ten minutes of information is about the maximum time for a didactic presentation (Bruce & Shade, 1995).

During the taping of the three instructional lessons, about 25 students were present in the classroom and seated in rows on either side of the video camera (see Figure 2). The instructor advised the students that the researcher was working on a project and would be recording her lecture that day. After the instructor took the class roll she began her lecture and the recording began.

The instructor was about 40 years of age. On the day the lecture was taped, she was wearing a dress with her hair pulled back in a ponytail. She wore glasses while giving the instruction. She was behind a tabletop podium for the instruction. The framing of the camera was a medium close-up revealing the top part of the podium. The shot shows the instructor from the elbows up and a chalkboard was seen in the background.

A small digital video camera (Sony TRV-8) was placed on a tripod directly in front of the instructor, about six feet from the podium, to obtain the correct framing. A wired lavalier microphone was used to record the instructor's audio instead of using the built-in microphone on the front of the camera. The microphone was placed on the front of the instructor's dress, but was concealed nicely and not noticeable. The microphone wire ran under the podium and directly to the microphone input on the video camera. This microphone configuration was necessary to ensure high quality audio.

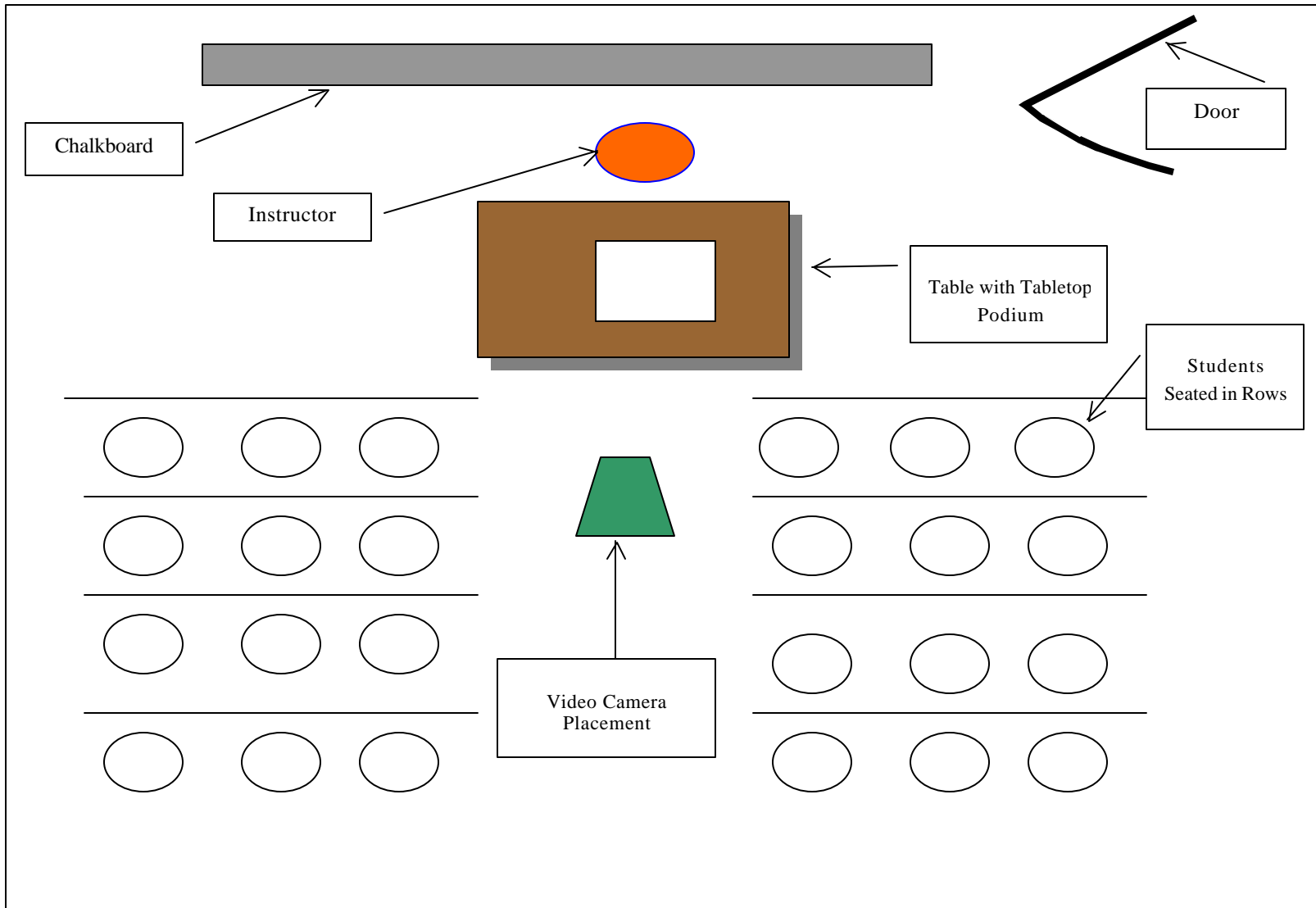


Figure 2. Classroom setup in which videotaping of instruction occurred.

Due to the microphone wire, the instructor was not able to move around the classroom. She remained behind the podium at all times and occasionally took a step to the left or right during the instructional lecture. The instructor varied her eye contact by addressing both the camera and the students in the classroom throughout the lecture. Once the taped instruction was complete, the researcher and the instructor reviewed the materials to ensure the correct beginning and ending points for the three-lesson division.

An audiocassette was made for each lesson and used to produce the written transcription (See Appendix A). This transcription was helpful in creating the achievement questions and provided the instructional text narration used on Treatments C and E.

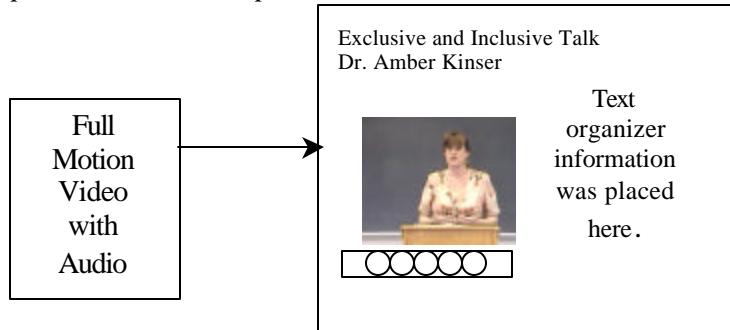
The video was digitized into a Macintosh G3 Minitower computer. The video was compressed using Edit DV software and Terran Media Cleaner Pro. Adobe Photoshop, Adobe After Effects, and MacroMedia Director were also used to produce an instructional CD-ROM. The final CD contained 15 separate lessons (3 lessons x 5 treatments). The audio was slightly superior to monaural audio CD quality for all of the treatments. The specific variations of these treatments included:

Treatment A

The instruction consisted of a full-motion waist shot of the instructor (talking head) presenting the lesson content in a small window located in the upper left-hand side of the computer screen. Buttons were included beneath the video frame in this treatment so participants could stop, start, rewind, fast forward, and pause the instruction at any time. Text organizer information, which consisted of an outline of key points of the lecture, was included on the right side of the instructional frame and changed on cue with the audio. All visual and verbal cues

were used in this treatment: facial expressions, gestures, proximity, appearance, and vocal inflection.

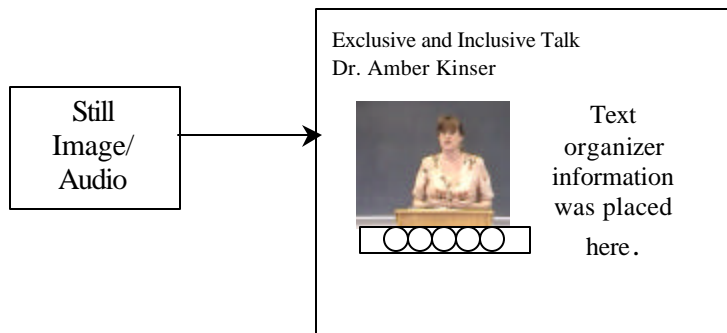
Treatment A-Computer Frame Example:



Treatment B

The instruction consisted of a single still image of the instructor (looking at the camera) digitized from the videotape and her audio. The still image did not change; it was the same throughout the lesson. Buttons were included in this treatment so participants could stop, start, rewind, fast forward, and/or pause the instruction at any time. Text organizer information, which consisted of an outline of key points of the lecture, was also included on the right side of the instructional frame and changed on cue with the audio. This treatment included the visual and verbal cues of proximity, appearance, and vocal inflection. Facial expressions and gesture cues were eliminated in this treatment.

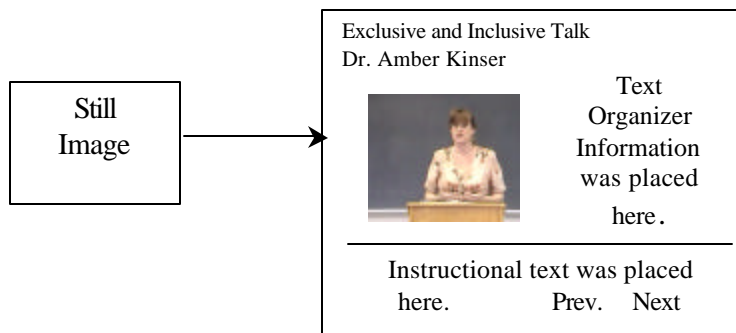
Treatment B-Computer Frame Example:



Treatment C

The instruction consisted of a single still image of the instructor looking at the camera. Again, this still image remained the same throughout the lesson. A transcript of the instructional text was placed in the lower third of the screen under the still image and text organizer information was also included on the right side of the instructional frame. Participants were able to navigate through the text by using buttons indicating previous and next. This allowed the participant to review a previous screen or move on to the next screen. These buttons were located in the lower left-hand side of the instructional frame. The text organizer information, which consisted of an outline of key points of the lecture, changed on cue with the instructional text screen changes. This treatment included the visual cues of appearance and proximity. Facial expressions, gestures, and vocal inflection cues were eliminated in this treatment.

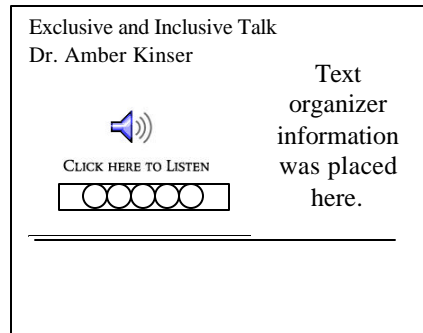
Treatment C-Computer Frame Example:



Treatment D

The instruction consisted of audio of the instructor and text organizer information. Buttons were included in this treatment so participants could stop, start, rewind, fast forward, and/or pause the instruction at any time. The text organizer information, which consisted of an outline of key points of the lecture, changed on cue with the instructional audio. This treatment included the verbal cue of voice inflection. Facial expressions, gestures, proximity, and appearance were eliminated from this treatment.

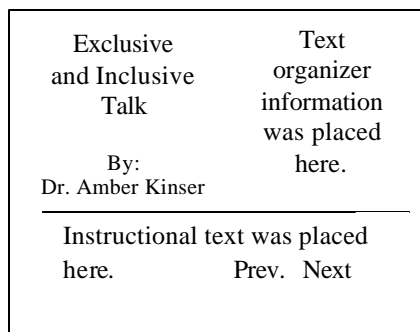
Treatment D-Computer Frame Example:



Treatment E

The instruction consisted of instructional text in the lower third of the screen under the title of the instructional lesson and the text organizer information was located to the right of the title. Participants were able to navigate through the text by using buttons indicating previous and next to review previous screens or move on to the next screen. The text organizer information, which consisted of an outline of key points of the lecture, changed on cue with instructional text screen changes. The visual and verbal cues of facial expressions, gestures, proximity, appearance, and vocal inflection were eliminated in this treatment.

Treatment E-Computer Frame Example:



Instruments

Social Presence Instrument.

Examination of the literature revealed the Parasocial Interaction Scale - PSI (Rubin, Perse & Powell, 1985) as a valid instrument for testing social presence. This instrument was developed to measure interpersonal involvement of media users with the media form they consume. For the purpose of this study, the original questionnaire was adapted to fit the measurement of social presence between students and their computer-based multimedia instruction. The original instrument showed high content validity and reliability. Cronbach's alpha was .93.

The social presence questionnaire included 12 questions (see Appendix B) such as: The computer-based instruction shows me what the instructor is like; When I'm participating in the computer-based instruction, I feel as if I am part of the class; The instructor makes me feel comfortable, as if I am with a friend.

Participants rated their responses for each of these 12 items using a five-step Likert-type scale. These five response categories were coded from 2 to -2 with 2 = strongly agree, 1 = somewhat agree, 0 = neither agree nor disagree, -1 = somewhat disagree and -2 = strongly disagree. Prior to summing the items to create the social presence score, the items were evaluated for internal consistency using Cronbach's alpha reliability coefficient. Cronbach's alpha for these 12 items was .74. Responses to the questions were summed to provide an overall social presence score for each participant.

Motivation Instrument.

In order to assess student motivation toward this computer-based instruction, the IMMS (Instructional Materials Motivation Survey) developed by John Keller (1993) was used. This instrument was designed in accordance with the theoretical foundation represented by the ARCS

Model (Keller, 1987) and consisted of 36 questions. Reliability estimates of the original instrument based on Cronbach's alpha measure was .96.

Twenty-six questions were extracted from the original 36 questions (see Appendix C) to be used with this study. The instrument included questions such as:

- When I first looked at this instruction, I had the impression that it would be easy for me.
- After the introductory information, I felt confident that I knew what I was supposed to learn from this instruction.
- Completing this instruction successfully was important to me.

Participants rated their response to the 26 questions on a five-step Likert scale. These five response categories were coded -2 to 2 with -2 = not true, -1 = slightly true, 0 = moderately true, 1 = mostly true and 2 = very true. Questions 25, 31, 37, 41, 42, and 46 were recoded in order to be consistent with the other items: higher scores reflected a higher degree of motivation. The items were evaluated for internal consistency. Cronbach's alpha for these 26 items was .89. Responses to these questions were summed to create the motivation score for each participant.

Student Satisfaction Instrument.

Student satisfaction toward the instruction in general was assessed. Six five-step semantic differentials (see Appendix D) that have been previously employed in overall course evaluation (Scott and Wheelless, 1975) were utilized. Participants rated their course satisfaction on the following: good/bad, valuable/worthless, admirable/deplorable, important/unimportant, significant/insignificant, and relevant/irrelevant. These semantic differentials have been used repeatedly to analyze student satisfaction toward instruction, with reliability estimates ranging from .88 to .93.

Each of these six items had five response categories coded 2 to -2 with 2 = good, 1 = moderately good, 0 = indifferent, -1 = moderately bad and -2 = bad. The internal consistency of the six items was evaluated with the Cronbach's alpha reliability coefficient. Cronbach's alpha for these six items was .90. Responses to the six items were summed to create the satisfaction score for each participant.

Achievement Instrument.

Participant scores on lesson content questions were used to measure student achievement. The participants answered ten multiple-choice achievement questions (see Appendix E) after each of the three lessons for a total of 30 achievement questions. Correct answers for each of the 30 items received scores of "1" and incorrect answers received scores of "0." These achievement items were evaluated for content validity. Gay (1987) points out:

Content validity is of prime importance for achievement tests. Content validity is determined by expert judgment. Usually, experts in the area covered by the test are asked to assess its content validity. These experts review the process used in developing the test as well as the test itself and make a judgment concerning how well items represent the intended content area. (pp. 156-157)

Therefore, the researcher provided the instructor of the multimedia computer-based lesson with a transcript. The instructor was then able to construct the 10 achievement questions needed for each of the three lessons. An additional professor of speech communications also reviewed these questions. It is important to note that some questions were taken from a test bank that accompanied the course text. The 30 achievement items were summed to create an achievement score for each participant.

Procedures

The researcher attended each section of the speech class offered in Fall 2000 to request volunteers for the study. Students were asked to sign a form indicating their wish to participate or not to participate. Participants were asked to sign up for a day and time to come to the campus computer lab for their multimedia instruction within a continuous three-day testing period.

All participants were required to access the computer-based lessons from one designated computer lab facility on the college campus. The multimedia instruction was produced on a CD-ROM and then the files were installed onto the local hard drive of each computer workstation. This reduced possible network problems on the days of testing. One treatment was installed on each computer and three icons were placed on the computer's desktop corresponding to the 3 lessons - L1A, L2A, and L3A. The lab was equipped with ten Windows-based multimedia computer workstations. For those workstations in which a treatment contained audio, a small headset was connected to the soundcard. This ensured other participants in the room would not hear the audio from other treatments. Due to the five treatment variations, sets of two computers were grouped to contain each treatment (see Figure 3). This configuration was necessary to shield participants from the varying treatments.

Requiring the participants to access the instruction from one location containing computers with the same configuration ensured that the instruction was viewed equally among all participants. More specifically, this ensured smooth video playback during the instruction. If participants had been allowed to access the computer-based lesson from other locations, smooth video playback could not be guaranteed.

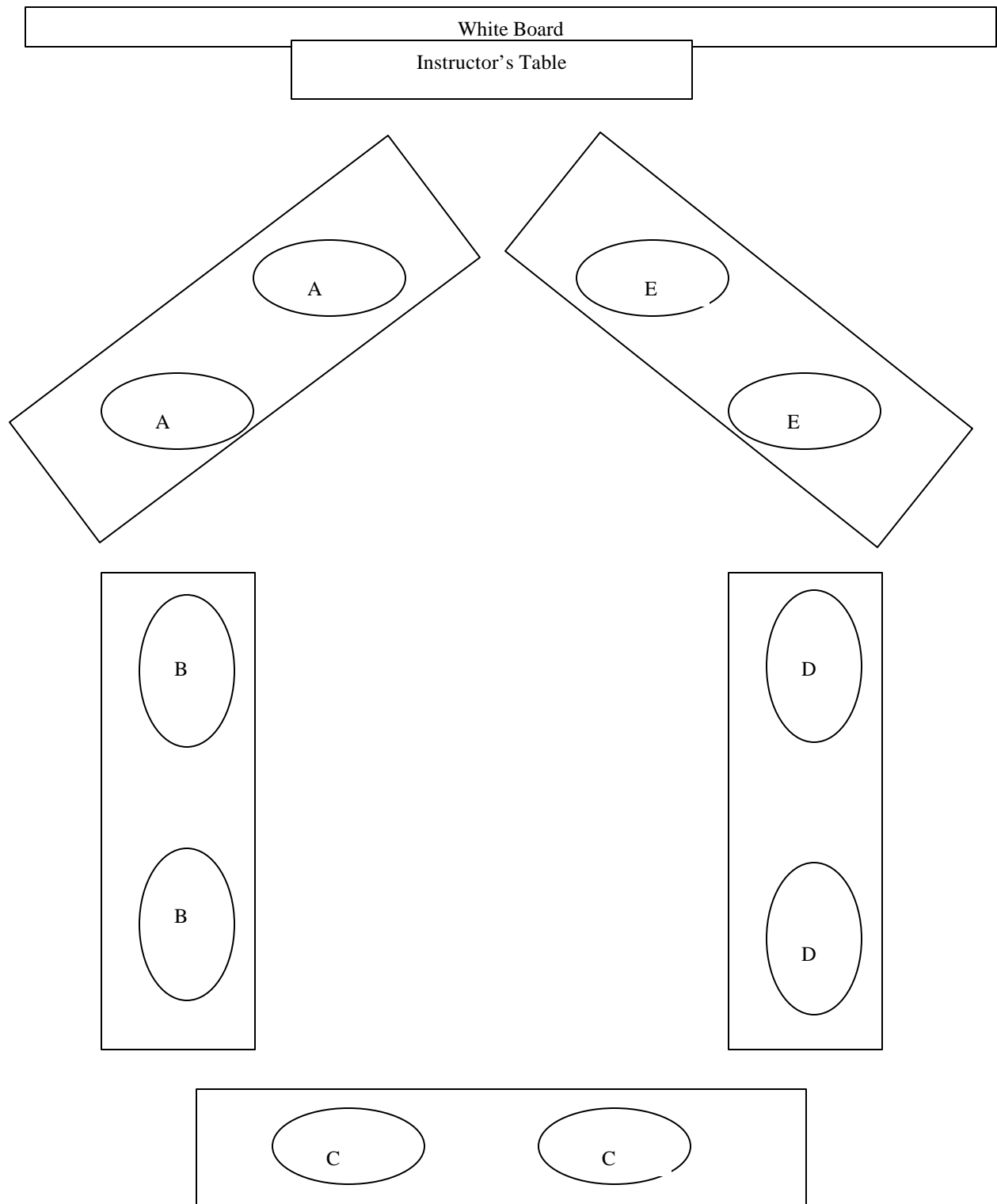


Figure 3. Computer lab setup in which testing took place. Letters designate treatment variation for each computer workstation.

On the testing days, scheduled groups of 10 participants arrived to the lab between 8am and 6pm at two-hour intervals. They were randomly assigned a computer workstation and were told the instruction would last approximately one and one-half hours; the time varied with each participant. Once all participants had been seated, the researcher read a prewritten set of instructions to the group (see Appendix F). This ensured instruction consistency throughout the testing. Once the oral instructions had been given, participants were instructed to double click on the L1 icon to begin their instruction. Each participant completed all three lessons in one sitting.

All participants were asked to enter their full name in the beginning of each instructional lesson. This information was not tracked for the experiment; it was the hope of the researcher that the participants would take the instruction more seriously if they were asked to enter their names. Each instrument was coded in order to track responses by participant and treatment group, yet maintain confidentiality of responses.

Participants first completed lesson one of their instructional treatment variation, and then answered an on-line achievement questionnaire. Upon completion of the achievement test, the participants were prompted to submit their answers. These test answers were coded and automatically e-mailed to the researcher each time the submit button was used. The code advised the researcher of the treatment group from which the subject participated. No feedback was given to the participants regarding their results on the achievement test.

Participants then viewed lesson two, with the same treatment condition as lesson one. Upon completion of the instruction, they were again prompted to complete an on-line achievement test covering information in lesson two only. They again were asked to submit their answers. No feedback on their performance was provided.

Participants viewed lesson three, with the same treatment condition as in lessons one and two. Upon completion of the instruction, they completed their final on-line achievement test on the information given in lesson three. They also completed an on-line questionnaire that consisted of 12 questions regarding social presence, 26 questions regarding motivation, and six satisfaction questions presented in that order.

Data Analysis

The study consisted of five treatment groups with 30 participants in each group. Each treatment experienced three computer-based instructional lessons. Treatment group A provided the greatest number of visual and verbal cues. Each subsequent treatment group used fewer cues (see Figure 4).

Treatments	Non-Verbal				Verbal
	Facial Expressions	Gestures	Proximity	Appearance	Vocal Inflection
Treatment A	✓	✓	✓	✓	✓
Treatment B			✓	✓	✓
Treatment C			✓	✓	
Treatment D					✓
Treatment E					

Figure 4. Treatment variations.

Note: ✓ indicates represented cue in treatment variation, whether non-verbal or verbal.

In addition to the treatment assignment, each student had four scores, one for each of the following variables: achievement, social presence, motivation, and satisfaction. These scores were not part of the students overall final grade in their speech course.

There were two stages of the data analysis. The first stage involved the testing of the primary hypothesis. A One-way Multivariate Analysis of Variance (MANOVA) design was used to determine if there were differences among the treatments with regard to achievement, social presence, motivation, and satisfaction. The probability of the multivariate test was evaluated against the preset alpha of .05.

Secondly, the secondary hypotheses were tested to evaluate the relationships among

achievement, social presence, motivation, and satisfaction. A Pearson's r Correlation Coefficient was used to test the correlation between any two of the dependent variables. The null hypotheses were tested using a one-tailed test of significance with the level of significance set at .05.

Results

The descriptive statistics for the dependent variables are displayed in Table 1 while the descriptive statistics by treatments for each dependent variable are given in Table 2. It is important to note that the potential range for achievement was 0 to 30 and the mean was 22.4. This indicates that the average achievement score for participants was around 75% correct. The potential range for social presence was -24 to +24; the mean for social presence was 1.95. This reveals that participants were, for the most part, rating the social presence questions by answering, “neither agree nor disagree.” The potential range for motivation was -52 to +52, the mean being 8.87. This indicates that participants were only slightly motivated. Lastly, the potential range for satisfaction was -12 to +12, the mean being 5.6. Clearly, participants were moderately satisfied with the treatments.

Table 1

Descriptive Statistics for Dependent Variables

	Mean	Median	Std. Deviation	Range	Minimum	Maximum
Achievement (0/30)	22.4200	23.0000	3.0964	16.00	11.00	27.00
Social Presence (-24/+24)	1.9533	2.0000	6.5378	31.00	-14.00	17.00
Motivation(-52/+52)	8.8733	9.0000	14.6481	68.00	-26.00	42.00
Satisfaction (-12/+12)	5.6867	6.0000	4.8135	22.00	-10.00	12.00

Table 2Comparison of Group Mean Scores

Treatment	Achievement		Social Presence		Motivation		Satisfaction	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
A	23.07	2.53	.63	7.18	7.43	15.30	5.10	5.57
B	22.87	2.73	2.53	5.80	8.93	14.29	5.93	3.66
C	21.53	3.27	.70	5.87	6.23	14.38	5.57	5.17
D	22.70	2.74	2.57	6.56	10.00	13.60	4.73	4.93
E	21.93	3.93	3.33	7.12	11.77	15.91	7.10	4.48

Note. Treatment A included full visual and verbal cues (full-motion video); Treatment B included limited visual and full verbal cues (still picture with audio); Treatment C included limited visual cues and no verbal cues (still picture and text); Treatment D included no visual cues and full verbal cues (audio only); and Treatment E included no visual or verbal cues (text only).

Primary Hypothesis

H₁ The means for achievement, social presence, motivation, and satisfaction are different across treatments which vary in the degree of visual and verbal cues.

The primary hypothesis investigated in this study examined the differences in Treatment means for achievement, social presence, motivation, and satisfaction. MANOVA was used primarily for two reasons. First, the MANOVA evaluates mean differences on more than one dependent variable rather a single dependent variable (ANOVA). Secondly, MANOVA also is used “to evaluate mean differences on all the dependent variables simultaneously, while controlling the intercorrelations among them” (Bray and Maxwell, 1985, p. 11).

As with any inferential statistic technique, MANOVA is based on a set of assumptions. One assumption requires that the dependent variables have a multivariate normal distribution within each group. In practice, each of the dependent variables should have a normal distribution. The Kolmogorov-Smirnov test of normality was used to test each dependent variable’s distribution against a normal distribution. Probability plots and histograms were also

examined (see Appendix G). Results revealed achievement and satisfaction did not have normal distributions. Social presence and motivation did have normal distributions. However, because the sample size is large ($N = 150$), the normality of achievement and satisfaction can be assumed on the basis of the Central Limit Theorem. This theorem states that as the sample size gets larger (over 30 is considered large), the sampling distribution of the mean can be approximated by the normal distribution (Howell, 1997).

A second assumption of MANOVA is homogeneity of variance for each of the dependent variables. Levene's test of equality of error variances for each dependent variable showed this assumption was not violated. A third assumption is that the covariance matrices of the dependent variables are equal across groups. The Box's M test of equality of covariance matrices revealed this assumption was not violated. Bray and Maxwell (1985) point out that in practice it is unlikely that all assumptions could be met. They maintain that the MANOVA still remains relatively robust to violations of assumptions. This is especially true when there are equal numbers in the cells, as was the case in this study.

The Pillai's Trace multivariate test was chosen to test the null hypothesis. According to Bray and Maxwell (1985), this test is the most robust among the four commonly available multivariate tests. Pillai's Trace resulted in $p = .389$. Given $p = .389$ is greater than the preset alpha of .05, the null hypothesis failed to be rejected. A visual comparison of treatment means for each (see Table 2), confirmed this conclusion.

Secondary Hypotheses

In order to evaluate the relationships among achievement, social presence, motivation, and satisfaction, a Pearson's r Correlation Coefficient was used to test the six secondary hypotheses (see Table 3). It should be noted that practical (substantive) significance and

statistical significance are two separate and distinct issues. A *statistically significant* finding may or may not be *substantively significant or important* (Selvin, 1957 & Gold, 1969). Often the statistical significance and substantive significance/importance are incorrectly viewed as the same concept. Also, to facilitate the assessment of the correlation coefficients, Champion's (1981) guidelines were adopted:

- ± 0.00 to .25 = no association or low association (weak association)
- ± .26 to .50 = moderately low association (moderately weak association)
- ± .51 to .75 = moderately high association (moderately strong association)
- ± .76 to 1.00 = high association (strong association) up to perfect association

Table 3

Correlation Matrix for Secondary Hypotheses

		Achievement	Social Presence	Motivation
Social Presence	Pearson Correlation	-.087		
	Sig. (1-tailed)	.144		
Motivation	Pearson Correlation	.241*	.590*	
	Sig. (1-tailed)	.001	<.0005	
Satisfaction	Pearson Correlation	.042	.627*	.653*
	Sig. (1-tailed)	.306	<.0005	<.0005*

Note: N = 150 * Correlation is significant at the 0.05 level (1-tailed).

The Pearson's r Correlation Coefficient for H₂, the higher the social presence, the higher the satisfaction, was $r = .627$ with p (one-tailed) = <.0005. This indicated a moderately strong positive relationship between social presence and satisfaction. Given the coefficient was in the predicted direction and that p was less than the preset alpha of .05, the null hypothesis was rejected.

The Pearson's r Correlation Coefficient for H₃, the higher the social presence, the higher the motivation, was $r = .590$ with p (one-tailed) = <.0005. Again, this indicated a moderately

strong positive relationship between social presence and motivation. The coefficient was in the predicted direction and the p was less than the preset alpha of .05. Therefore, the null hypothesis was rejected.

The Pearson's r Correlation Coefficient for H₄, the higher the social presence, the higher the achievement, was $r = -.087$ with p (one-tailed) = .144. This showed a very weak negative relationship between the variables. Since the sign of the coefficient was not positive, as indicated in the research hypothesis, the null hypothesis failed to be rejected.

The correlation for H₅, the higher the satisfaction, the higher the motivation, was $r = .653$ with p (one-tailed) = <.0005. This indicated a moderately strong positive relationship between satisfaction and motivation. The coefficient was in the predicted direction and the p was less than the preset alpha of .05. Therefore, the null hypothesis was rejected.

The correlation for H₆, the higher the satisfaction, the higher the achievement, was $r = .042$ with p (one-tailed) = .306. This showed a very weak relationship between these variables. The coefficient was in the predicted direction, but the p was greater than the preset alpha of .05. Therefore, the null hypothesis failed to be rejected.

The Pearson's r Correlation Coefficient for H₇, the higher the degree of motivation, the higher the achievement, was $r = .241$ with p (one-tailed) = .001. This revealed a somewhat weak relationship between motivation and achievement. Given the coefficient was in the predicted direction and the p was less than the preset alpha of .05, the null hypothesis was rejected. However, the relationship was moderately weak.

Discussion

The primary purpose of this study was to uncover what effects multimedia instruction, which contains a high degree of visual and verbal cues, compared to multimedia instruction, which contains a low degree of visual and verbal cues, may have on college students' perception of social presence, motivation, satisfaction, and achievement when learning from the multimedia lessons. One hundred and fifty students were randomly assigned to five treatment groups. The treatment groups received three computer-based multimedia lessons that included either full visual and verbal cues (video), limited visual and full verbal cues (still picture with audio), limited visual cues and no verbal cues (still picture and text), no visual cues and full verbal cues (audio only), or no visual or verbal cues (text only).

There were a total of seven hypotheses in this study (one primary hypothesis and six secondary hypotheses). A One-way Multivariate Analysis of Variance (MANOVA) design was used to test the primary hypothesis. The probability of the multivariate test was evaluated against the preset alpha of .05. To provide analysis for the secondary hypotheses, a Pearson's r Correlation Coefficient was used to test the zero-order correlations among achievement, social presence, motivation, and satisfaction. The null hypotheses were tested using a one-tailed test of significance with the level of significance set at .05.

This study failed to support the primary hypothesis that means for social presence, motivation, satisfaction, and achievement were different across treatments. It is difficult to assess the reasons why these verbal and visual cues were not perceived to be as important as the literature revealed (Arnold, 1990; Baesler & Burgoon, 1987; DeMeuse, 1987). According to Bancroft (1995) a teacher's body language and tone of voice are instrumental in the educational process.

This study also failed to support two of the six secondary hypotheses; the higher the degree of social presence perceived by the student, the higher the level of achievement from the computer-based instruction and the higher the degree of satisfaction perceived by the student, the higher the level of achievement from the computer-based instruction.

The secondary hypotheses which were supported included the higher the degree of social presence perceived by the student, the higher the level of satisfaction with the computer-based instruction, the higher the degree of social presence perceived by the student, the higher the level of motivation toward the computer-based instruction, the higher the degree of satisfaction perceived by the student, the higher the level of motivation toward the computer-based instruction, and the higher the degree of motivation by the student, the higher the level of achievement from the computer-based instruction.

Although the treatments did not affect perceptions of social presence, motivation, satisfaction, and achievement, this study did support relationships among several dependent variables. Previous research has supported relationships among motivation, satisfaction, achievement, and immediacy behaviors. Immediacy behaviors are closely linked to perceptions of social presence. This study contributes to research by finding relationships between social presence and satisfaction, social presence and motivation, satisfaction and motivation, and motivation and achievement. This study also supports findings in the literature regarding the relationship between social presence and satisfaction. Gunawardena and Zittle (1997) reported that social presence was found to be a strong predictor of satisfaction in computer conferencing. The current study finds that the same may be said for multimedia instruction.

Limitations and Possibilities for Future Research

Observations of students during the experimental testing revealed several possible limitations and possibilities for further research.

The testing time for the participants ranged from one hour to two hours in duration. The students seemed to become weary of the instruction during the testing, especially those participating in Treatment C (still picture and text) and Treatment E (text only). It would have been possible on any of the treatments to pause the instruction so that a participant could take a short break and then resume their instruction. Future studies should include instructions for students to take a break during the testing to eliminate student fatigue as an intervening variable.

It could be possible that the content of the instructional lesson, inclusive and exclusive language, offended some of the participants. This topic covered areas such as racist, sexist, and heterosexist language. It was a goal of this study to choose a topic that was unfamiliar to the participants; therefore, this topic was chosen. Future research might benefit by using a subject matter that is less potentially offensive. Observations of the students revealed that the male participants voiced more negative comments, regarding the instructional material, than females. This may be due to the female instructor in this study discussing sexist language by giving examples of comments the male sex make toward the female sex.

Taking into account the comments made by participants at the conclusion of their testing, it was thought that many students did not respond well to the instructor used in this study. Many participants made casual comments after their completion of the testing that they did not like “that lady” in the instruction. As McIsaac and Gunawardena (1996) pointed out in their research, social presence can be conveyed both by the medium and by the people who are involved in using the medium. They go on to add that instructors who humanize the classroom climate may

convey a higher degree of social presence than those who do not. Cues such as eye contact, tone of voice, appearance, facial expressions, proximity, and gestures are all thought to contribute to social presence. It may be that the instructor used in this study did not convey a high degree of cues that contribute to social presence. Of course, these comments made by participants might only apply to those who viewed Treatment A, which included full visual and verbal cues (full-motion video). It might have also applied to those who viewed a still frame of the instructor: Treatment B, which included limited visual and full verbal cues (still picture with audio) and Treatment C, which included limited visual cues and no verbal cues (still picture and text). Future research using full-motion video might benefit from comparing results of using a more dynamic instructor vs. a less dynamic instructor.

The social presence questions used in this study may be measuring the “liking” of the instructor. (For example: The CBI instructor makes me feel comfortable, as if I am with a friend; I would like to meet the CBI instructor in person.) These questions may not be effective in truly testing for the degree of perceived “social presence” in computer-based instruction. As Gunawardena (1994) pointed out, the capacity of a medium to transmit information about facial expressions, direction of looking, posture, dress, and nonverbal cues all play a part in the degree of perceived social presence of any communications medium; the social presence questions used in this study may not be accurately measuring these cues.

It is possible the scale used to test social presence might have been inappropriate to measure social presence in short computer-based lessons. The social presence scale had the potential range of -24 to +24, yet the mean was very close to zero. This scale was acquired and adapted for this study from Boverie’s (1997) research on social presence in distance education.

The scale did provide statistically significant results in Boverie's study but Boverie's study occurred over a 16-week period.

Most of the literature reviewed discussed studies (Gunawardena, 1994; Boverie, 1997) which spanned the course of a semester. Future studies may want to consider replicating this study over a longer period of time. Exposing participants to the various treatments over a longer period might provide different results.

Implications of the Study

This study suggests that full visual and verbal cues (full-motion video) may not be necessary in instructional multimedia design. Instructional designers producing instructional content delivered via CD-ROM and the Internet may find this information useful. A very time-consuming process of creating full-motion video (i.e., videotaping the instructor, setting up lights, microphones, etc.) may not be warranted. This is useful for web instruction simply because full-motion video requires longer download times.

Instructors may find the results of this study interesting for the simple reason that they need not be overly concerned about placing themselves on camera when preparing computer based instruction. But, if an instructor chose to do so, nonverbal expressions such as making eye contact with the camera lens (Arnold, 1990; Breed, 1971; Lin & Creswell, 1989; Rosenkoetter, 1984), smiling, posture, and appearance all may have an impact on the learner.

Yildz and Atkins (1993) stated that educators and decision-makers at all levels need convincing evidence on multimedia effectiveness before substantial investments are made in hardware and teacher training. Based on the results of this study, justifying the expense of purchasing hardware and software in order to create instruction that will accommodate full visual and verbal cues cannot be supported.

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Appendix A

Lesson One

We're going to talk about language, and most specifically about exclusive and inclusive language. We're going to talk about 3 major categories of exclusive and inclusive talk.

Including racist language, sexist language, and heterosexist language.

First thing I want to talk about is just sort of some general explanations about exclusive and inclusive talk. Exclusive talk is that talk which leaves out a particular group of people that doesn't make them feel involved in the conversation, doesn't make them feel interested in the conversation, leaving out someone in that group because of the topic that's talked about, because of the nationality, their race, their ethnicity, their religion.

Talking to people in general about the holidays for example if you mention only Christmas you're excluding people who may be celebrating other holidays in the winter. So you could exclude people based on their interests whether or not they understand it or whether or not they feel that you're referring to them in the conversation. So those are three ways that they can be excluded in the conversation. What you want to do is find a way to use inclusive talk.

A good, responsible communicator is someone who is very mindful about the things their talking about, and is someone who tries to make efforts to use good inclusive talk. So you're trying to be very mindful of the ways that your talk might, even if you didn't mean to and that's the important thing, even if you didn't mean to it might exclude someone in the group or some people in the group. Sometimes we feel like if we didn't mean to exclude someone and then we're doing okay, but really you're only half way there if you didn't mean to, because what matters the most is the outcome not the intention. Intention doesn't end up mattering as much to people.

So let's take a look for a little bit at why it is somebody might use exclusive talk. If it's a kind of thing that isn't a good thing what makes people engage in talk that excludes others? One of the ways is insecurity. Sometimes people feel like, "If I can just guide the conversation then I can feel more in control of the situation." If you know the conversation you can guide it, that way you don't have to worry that it might go in some direction that you're not familiar with.

So even if you didn't conscientiously mean to, even if you didn't pursue the conversation, "Hey I think I'm going to take over the conversation." Sometimes people using exclusive talk is indicative of their own insecurity. Wanting to be in charge of the situation, because then they don't have to worry about what direction it's going to go in or whether they're going to understand what we're talking about or not.

Another reason someone might use exclusive talk is just plain old egocentricity. You know what that is: believing that things revolve around you, around the self. Okay, so the idea is that I believe what I say matters a great deal, and so everybody else should believe that what I say matters a great deal. So just on the basis of that alone I get to sort of guide the talk, because what I have to say is so terribly important. Some of you probably know someone who engages in that kind of talk. A kind of talk that sort of takes over the conversation and focuses on what they want to talk about without regard for what other people might be wanting to talk about in the group.

So we have insecurity, egocentricity, and the third one is just plain old insensitivity. Maybe someone knows that they are taking over the conversation, but they don't really care. Or they think that, "Yeah, I'm kind of taking over this moment, but I'm going to hand it over to the other people in the group in a minute," but never do. You probably know someone who takes over the conversation simply because they don't care. "What is important is that I hear myself talk, that

other people hear these vastly important things that I have to say, and I'm not really concerned about how it influences other people." We probably all know someone who does that, and probably have done that at some point or another, because we really needed to say what we wanted to say.

And the last reason is a simple lack of awareness. You didn't realize that what you were doing was excluding people. And as we talk today probably many of you will find that what it is that you're doing actually ends of being exclusive talk, and you didn't know it. You weren't as aware of it.

So the important thing that I want to mention is that outcome is going to matter a whole lot more than intention.

Lesson Two

One of the ways that we engage in exclusive talk is by making it sexist.

Sometimes we can identify very clearly what kind of talk is sexist talk. You can probably give some examples of sexist talk.

Some kind of denigrating someone of the other sex, willfully talking about someone negatively of the other sex.

There are a lot of forms of sexist language that we engage in as part of a sexist culture that we may not realize we participate in and exclude.

Sexist talk is any talk, which regardless of the speaker's intention ignores, or denigrates, or minimizes the importance of one's sex or the other. That ends up putting one sex in an inferior position.

And often simply by not mentioning the other sex and that is a negative thing especially when you do that when it's not relevant. If you mention the sex of a person when it's not relevant, or don't mention the sex of a person when it is relevant to the conversation, both of these are ways in which you will engage in sexist language.

I'm going to talk about four forms of sexist talk.

The first thing I'm going to talk about is gender-biased references. These are things that are part of our everyday kind of conversation that we're not used to. We're used to hearing, but we're not used to being mindful of as we speak. So, you still hear references like "man," "pre-historic man," "mankind," "all men are created equal." And we were taught in school that these were called "gender neutral" terms when in fact what they are gender biased terms rather than gender neutral, because they are not neutral they mention one sex over the other. And then we were also taught in school that really it doesn't make a difference, because when you say "man,"

“mankind,” people hear man or woman and that it’s meant to reference males or females, and that’s the way people hear it. Then we take a look at the research about how do people hear “man” and “mankind”? And we examine the kinds of images they think of. So we said in some of research projects in communication, “Talk to me about businessmen. Write a paragraph that explains businessmen.” And then we would say, “In sales businessmen would like to use cellular phones, need this briefcase, need this computer on the go.” We ask people, “Describe businessmen to me.” And so the paragraph that they write is about men. We engage them in studies, “Talk to me about pre-historic man. Urban man. Economic man.” Like as if these were chapters in an anthropology book. Talk to me about that group people are talking about men. So we find that when we say things like “man”, “mankind”, “all men are created equal” people actually think in studies about what people are thinking about when they hear those terms think in terms of men even though we were taught in school that these are generic, they are actually not generic they are gender biased. When we say things like, “Every student should bring his pencil to school,” what we’re saying is all the male students should bring their pencil to school, and it excludes females. We’ve been taught that the he and his is just generic when in fact it’s not generic it’s gender biased.

So we talked about some of the gender biased references that we’ve been taught were gender neutral. The next category of sexist talk is when we have descriptors. When we’re describing men and women we tend to describe women primarily in terms of their bodies, sometimes in terms of parenting, motherhood. Most often in terms of their bodies. So when you say, “Describe your girlfriend to me.” “Describe your teacher to me.” We find that very often when we’re describing females we describe what they look like first. What kind of message does that send to people about women? that the most important feature of them is their appearance. And

when we all have a lifetime of understanding when women are described we describe their appearance first then we start to learn that what matters most for women is what they look like. When we describe men we find that we talk about them primarily in terms of strength and work. So we set men and women up to think of themselves women in terms of appearance, men in terms of strength and work. This can have very negative effects on both men and women. It teaches men to see women in terms of appearance and it teaches men to miss out on relationships that could be so much more full, because it focuses on things other than appearance. Teaches women to see themselves primarily all about appearance. Men who are talked about primarily in terms of strength and work are taught that those are the things that matter. “So any moments when I don’t demonstrate my strength I am not being masculine. Anytime that I am not demonstrating my bravery I am not being masculine, I am not being man enough.” It’s about aggressive and power, because we refer to them mostly in those terms. Also we find that men tend to think of themselves and their identity is very closely wrapped up in their work that this is the most important thing to many men, but not all of course. What’s interesting and scary about that is that we find about 90% of suicides, and we take a look at what was happening in their lives, what their suicide notes say male suicide is 90% related to failure or perceived failure at work. So somehow men are taught to be so wrapped up in their work that that’s part of their identity that they can’t be separated from it so failure in that or perceived failure in that means failure in life in general. And one part of that perception that many men have is built up by how they are talked about. So when you explain to your boyfriend your day you talk about work, or when you talk about your grandfather you talk about strength and work. And while that is part of the person that can certainly be part of the description that we tend to primarily talk about that can have negative consequences in the end. Women’s appearance, men’s work and strength.

Sometimes men don't want to be strong. Growing up in a culture that says you don't have to be strong or shouldn't be expected to be strong. Especially when women aren't expected to do that same stuff, and in a culture that teaches men this is what you must do, you must do, you must do, we kind of set ourselves up in the culture for some very negative consequences in the end.

Okay so we've talk about gender biases references,

we've talked about descriptors, and now we're going to talk about

sex role stereotyping. So this is the third one. This is one we draw on general images of sex role stereotyping to describe the people that we're talking about. So we assume she is the one that's making supper. We assume that he is the one that works. We assume that if the couple moves they're moving because of his work. When my husband and I had just had a baby and we moved to Tennessee to take the job here at ETSU and people would ask me if I was staying home with the baby and ask him what about his job. In fact he was staying home with the baby and we were moving for my job. What was interesting it wasn't really problematic that they asked us those questions what became problematic was that nobody asked him if he was staying home with the baby, and nobody asked me what about my job. And so what that suggests is that men are all about work, and women are all about babies which deprives women of opportunity to be in part about work. Deprives men of the opportunities to be about babies at some point or another.

So the main two categories that we tend to sex-role stereotype people are

domestic roles and occupational roles. So we assume that women are largely about domesticity, and men are largely about work. When we talk about fireman, policeman, there are other words we could use like firefighter, police officer, we don't have to say policeman or policewoman, but when we say police officer that refers to all of them. When we use a word like foreman, which is

a word we've been using for a very long time, there are other words we could use. We could say forewoman, but we could also say supervisor and switch the word all together. There are ways to be more inclusive.

The important thing to remember is that when we starting using these terms like "man", "mankind", firemen, "all men are created equal" we meant what we said at the time. When we had "all men are created equal" we meant in the constitution all men are created equal, because at the time women were not created equal they were property like children and slaves. Actually the truth of the matter is that all men weren't created equal according to that constitution either, because some were slaves that were men, and they weren't created equal. So we meant at that time for the most part that men were created equal, but we don't mean that now. We don't adopt that philosophy now that men are at one level and women are at another level and so the language needs to shift to coincide with that shift, and thinking, and living.

When we said fireman originally most firefighters were men. Maybe even all. Most police officers were men. Maybe even all, but that is shifting, and so the line which needs to shift to count for that. When we have things like you assume that the attorney that someone has is a male, that the physician somebody has is a male, that the nurse somebody has is a female, that the elementary teacher that a child has is female, and while that might very often be true it's important for us to shift our language to coincide with what's happening in the real world, to coincide with the lives that real people are living in the world instead of this other world that we pretend exists. That certain groups are superior over another one in fact they're not. A language allows us to keep thinking when the language needs to shift.

The fourth category is terms of address. What we find is that men tend to be referred to with respectful terms of address much more often than women. Let's say a store clerk said to the customer, "Sir, can I help you?" The store clerk is more likely to say to a woman, "Honey, can I help you?" "Sweetie, can I help you?" You may not believe that that happens still, but the fact of the matter is that it does.

He's a "sir" or a "mister", and she's a "sweetie" and "honey" more often. Which says that we're not thinking about men and women equally if we have a respectful term for men and we don't have the same respectful term for women. Often store clerks will say "ma'am" as an equivalent to "mister". I'm not sure if that's equivalent or not, but I suppose it's better than "sweetie" or "dear".

We'll find that in an office place for an example if we have a male manager and a female administrative assistant he will refer to her by her first name, and she will refer to him as "Mr. Whatever", whatever his last name is. "Mr. Liebowitz" and she's like "Darla". She's in a position of referring to him with respect and he's in a position to referring to her as a bud or a sister or a child. So these are some names that need to be shifted. We also find still shockingly in the marriage ceremony that we're still saying "man and wife". We've been doing this for a very long time, but there is a reason we originally started saying "man and wife". Now what might be a better way of suggesting that? "Husband and wife"? "Man and woman"? "I pronounce you man and woman." Which makes no sense right, because nothing in the ceremony changed them to man or woman, so that you would say that they were man and woman going in they are man and woman going out. So when they get married she's now a wife, and he's now still the same old guy. Nothing has changed. The marriage ceremony is supposed to mark the beginning of difference as all ceremonies do. It's the end of something before, and it's the

beginning of something to come. And when we have a marriage ceremony that says you are changed, because you are now a wife, but you haven't changed, because you are not her husband back. This becomes a problem and it influences the way we think about one another in marriage. The answer is either we both changed or none of us has changed. See she is defined now in terms of her relationship to him. She is the wife now. He is defined in the same way he has always been defined, and that's just as a man, as an island. So, if we're going to define one another based at least in part of our relationship to one another, then that language of husband and wife needs to shift.

So we talked about some of these categories of sexist talk. The important thing is here is that you need to take account for the language that you use. What kind of language do I use? Would I have noticed when I heard someone say, "man and wife"? Do I say "fireman" instead of "firefighter"? What is some of the language that I use? Do I describe my women friends primarily in terms of their appearance? Men primarily in terms of their work and strength? Maybe I need to take account of that.

So, you're working toward communicating in mindful ways rather than mindless ways Trying to make your talk more inclusive even if you didn't mean to exclude them you're still responsible for that as a communicator and less exclusive of people remembering the outcome is always going to matter more than intention.

The End

Lesson Three

Moving on in our discussion to exclusive and inclusive talk a couple categories of exclusive and inclusive talk is racist and heterosexist talk. You probably have heard racist talk, you might not have heard very often the phrase heterosexist. I'm going to talk about both of those today.

Heterosexist or racist talk is any talk that, much like our discussion earlier of sexist talk, that ignores, denigrates, or minimizes the importance of any group based on their nationality, ethnicity, or sexuality.

You'll probably find that much of this talk you have participated in. So part of being a good communicator is willing to take an inventory of the kinds of communication patterns that you use. And being will to make shifts. Instead of saying, "That's not what I meant," which isn't enough saying, "Hey, that's not what I meant," but it might be troublesome to some people. It may not be highly offensive but it may be troublesome, it may be excluding them. And I don't want to use exclusive talk. Sometimes people get confused and say; "I don't see how that could possibly offend somebody. Why is that language so offensive to some when I say 'fireman' instead of 'firefighter'?" Because being excluded in a place where you belong is offensive and while you may not take a very strong angry offense to it you're still being excluded in unfair ways in a place where you very much have a right to be.

Let's talk about some ways that racist and heterosexist talk can put people in an inferior position even if you didn't mean to.

Several examples of racism's, some very obvious, are out and out blatant denigrating or particular race or ethnicity because you don't like them. You're using the "N" word, a word I can't even bring myself to say to refer to African Americans. All kinds of negative language sort of nickname negative terms to refer to a variety of ethnicities. You know what some of those

are. We tend to find a little catchword to talk about what other categories of people we don't particularly care for. Those kind of racist comments that you know about, "All people who are Mexican do this and I hate that." "Oh those black people they do this." "Oh those Irish people do that." And talking about it in ways that are very negative. That's a kind of obvious racism. Another kind of racism, and you know about this, is assuming that they whole of particular group engages in particular behaviors that you've only observed from a couple. Or you've only observed from some. So you have this one experience or someone you know has this one experience with certain members of a particular group so you make assumptions about the entire group based on that experience. You've lived in six towns in your whole life.

You've found some evidence that some similarities of certain cultures, so you assume you know all you need to know about an entire nation of people. When in fact you don't know enough to make larger categories of assumptions about the whole group of people. What happens when we do that too is not only are we willing to say, "Everybody in the group has these categories, because I've observed a few people having them, but I've also ignore when those same categories arise in my own race." So if we talk about one particular race has a proclivity toward rape, but then we ignore all of the rape that takes place within our own culture that's a form of racism. "I'm only going to see it here. I'm going to see it there among all those people, and then I'm also going to ignore when it happens within my own group a way of being blind to things that you don't want to see about your own group.

Talking about other groups in stereotypical ways assuming that, remember we talked the other day about the assumption of Mexicans families all coming in great groups together, you know twenty living in a house. I know many Mexicans, I know none of twenty in a house. I know none who even have six in a house. Assuming that people who are Irish are very angry and drink

a lot, or short-tempered. Assuming that people who are black are great at sports. Assuming that people who are Asian are very smart. Assuming that Asian women are very subservient.

Assuming that Native Americans always want to fight.

These are some of the categories of behavior that we use to guide our interaction with people in particular groups that are based on stereotypes. We need to shift that language. You can only make claims for which you have evidence. So if you have evidence from two people from a particular group, then you can make claims about those two people. Until you collect data from all the other people in that entire race, or a significant majority of people in that race, you're not in a position to make any generalizations. And until in fact you collect data from every person in that race you're definitely not in a position to make those kinds of generalizations. So if you have evidence for a couple you can make claims about that couple. If you don't we don't need to be making generalizations about the group when we don't have evidence for that.

Then the last kind of racism I want to talk about is, and this is one that we probably engage in but we don't realize it, and that is language that identifies the race of a person in moments when it's not relevant. So for example when you're pointing out someone over there, "This is my friend over here. It's the black guy." So maybe the black guy is the only black guy in the group, maybe the black guy is the only guy in the group who has a blue shirt on. Maybe the person is maybe the only guy in the group who is the shortest. Maybe the person is also the only person in the group who is sitting down. So there are a variety of ways to point out, because what that says is the most important feature of this person is his skin color. "It's the Asian person."

Try and find other ways to refer to that person. That teaches you to look beyond and teaches others in the group to look beyond the surface of the person that there are other ways that I can identify that person that are very similar to the ways that I identify anybody else. I mean if the

person didn't have a different skin color what would you say? You would find a way to point that person out in the group. You always can say, "The person to the left." "The person in the middle." "Oh, he's raising his hand right now." These are ways you can refer to the person who's of a different group than you without making skin color primary when it's not relevant, because it teaches us to see skin color and ethnicity as the most important feature of a person even when it's not relevant. So we have to think about when is it relevant, and when is it not? So these are some ways that racist language whether we're meaning to or not can exclude certain groups of people.

Let's take a look at how heterosexist language functions in much the same way. Heterosexism is the assumption of heterosexuality of the people. It's an assumption that all the persons that you are talking to or about are heterosexual and because you refer to that more often it's a way of putting heterosexuality up, homosexuality down by way of justifying denigration of people.

Terms that for example that use homosexual references as a way of name-calling. Calling someone who is homosexual, one of your straight friends, for example, "fag", or "queer", or "lez" as a way of name calling. Like this is a worst thing you can be. It's kind of like the inherent sexist boys calling each other "girl". You throw like a girl. Like that's the worst thing you could possibly do is to look like a girl when you're trying to throw a ball. It's a way of saying the last thing you would want to be is "girl-looking", and this heterosexist language functions in much the same way. The most hideous thing I can think of to say to you is to question your heterosexuality. Then in that way it's a form of heterosexism. A form of mockery.

Language that, much like racist language, language that identifies the sexuality when the sexuality isn't relevant. Having a discussion about whether or not someone is gay, about whether or not someone is straight in a conversation where it's not relevant. There may be a conversation in which that is relevant. For example two women are talking about this man over here. One of them is thinking about asking him out for a date. Her friend happens to know he is gay. So she says, "I don't think you want to ask him out for a date. I'm thinking he's not going to want to go with you. I mean you might go have lunch, but it's not going to be a date." So in that situation the sexuality of the person was relevant. In many other situations, probably most situations, the sexuality of the person is not relevant. So instead of saying, and you've probably caught yourself in this conversation whether you were the one speaking or listening to it, "I bet he's gay." "I think she's a lesbian." "She's not dating anybody, do you think she's a lesbian?" As if being a lesbian dating no one is connected. Is there some way you can talk about the person that doesn't make their sexuality primary in moments when it doesn't matter.

It's like saying, "He's a male nurse." We talked before about sexist language identifying a nurse as male in a time when it's not necessary. Is he a nurse or not a nurse? Whether or not he's male or female is not relevant to how well he can do the job. There are women attorneys. If the sex isn't necessary then we need to not bring it up. What that says is there are attorneys, and then there are women attorneys, which is this other thing. Instead of putting them together in the similar. It's like the "Bucs" and the "Lady Bucs". It's like there are the "real" Bucs, and then there are the Lady Bucs is the other category. Trying to think of when sexuality or sex are relevant and leaving those references out when they don't matter, because what they do is send a message to us that says that this is the most important thing. This matters much in this conversation that has nothing to do with sexuality. Someone's sexuality always matters that

every moment in every conversation that allows us to do sets us up to some negative thinking about that person.

The last category of heterosexism I want to talk about is the assumption of heterosexuality.

When you talk about, and we had talked about this before, is assuming that everyone that you talk about is heterosexual. So instead of saying, “Hey I’m having this party you can bring somebody. Bring your partner or whatever.” You say, “Bring your boyfriend, or whatever,” to a young woman and that says to her, “I’m really just inviting people who are heterosexuals to my party because at my party we’re going to be watching a ball game and sexuality is going to matter a whole lot, because we’re going to not be in the same room.” We have to say terms that make people feel included. If you use language that excludes someone that sends a message that my sexuality matters in terms of your friendship with me. If I am lesbian, if I am gay, then I am not invited, because my sexuality matters very much at your house.

If you’re not wanting to send that message then you’ll need to shift your language in a way that feels more inclusive. Saying when you get married, when you have children, we talked about all of this, these are all ways that exclude many people. The assumption of marriage.

So we’ve done kind of a quick coverage of racist and heterosexist language that’s much more complicated than all of that, but the important thing I want you to remember is to be mindful of the language choices that you use. You are as a good communicator accountable for the consequences that come about as a result of your communication, so if people feel excluded from your talk that’s your rap. If people feel not a part, not important, if they feel invisible because you don’t mention them that’s your rap. You’re responsible for your own communicative choices and their outcomes, and that’s the tricky part.

It's a little bit easier to think about what I'm going to say, but then to be responsible for what it might mean to somebody else is a very complicated thing, and I'm not arguing that you need to be in charge of it just because it's simple, because it's not.

Who knows who makes up your group? You're talking to twenty people who knows who's in the group? Which is why if you shift your language around so that it's just sort of naturally more inclusive then you don't have to worry about who it is that you're excluding. If you change the word partner and just use that all the time regardless of whether you're talking about male/female, marriage/not marriage then you don't have wonder who you're excluding or including. You say firefighter, it's always going to apply. You say attorney, it's going to always apply.

So these are some of the language choices I'd like you to think about making and making them mindfully. You're talk needs to reflect your understanding that there are a variety of races, ethnicity's, sexuality's, nationalities, genders that make up the real world. That real people are living in and your talk needs to reflect that. Remember that the outcome of your talk is going to matter much more than the intention behind it.

The End

Appendix B

Part II. Social Presence Questions from On-Line Testing

Please read each statement and decide whether or not you agree with it. Express your answer by using the scale provided:

11. I get a good idea what the instructor is like from the computer-based instruction (CBI).

Strongly Agree

Somewhat Agree

Neither agree nor Disagree

Somewhat Disagree

Strongly Disagree

12. When the CBI instructor jokes around it makes it easier to pay attention to the computer-based instruction.

Strongly Agree

Somewhat Agree

Neither agree nor Disagree

Somewhat Disagree

Strongly Disagree

13. When the CBI instructor reveals how she feels about a topic, it helps me make up my own mind about the topic

Strongly Agree

Somewhat Agree

Neither agree nor Disagree

Somewhat Disagree

Strongly Disagree

14. I feel sorry for the CBI instructor when she makes a mistake.

Strongly Agree

Somewhat Agree

Neither agree nor Disagree

Somewhat Disagree

Strongly Disagree

15. I like to compare my ideas with what the CBI instructor says.

Strongly Agree

Somewhat Agree

Neither agree nor Disagree

Somewhat Disagree

Strongly Disagree

16. The CBI instructor makes me feel comfortable, as if I am with a friend.

Strongly Agree

Somewhat Agree

Neither agree nor Disagree

Somewhat Disagree

Strongly Disagree

17. I see my CBI instructor as a natural, down-to-earth person.

Strongly Agree

Somewhat Agree

Neither agree nor Disagree

Somewhat Disagree

Strongly Disagree

18. If this CBI instructor were scheduled to teach another computer-based lesson, I would want to take that instruction.

Strongly Agree

Somewhat Agree

Neither agree nor Disagree

Somewhat Disagree

Strongly Disagree

19. When the CBI instructor covers a topic, she seems to understand the kinds of things I want to know.

Strongly Agree

Somewhat Agree

Neither agree nor Disagree

Somewhat Disagree

Strongly Disagree

20. I sometimes make remarks to the CBI instructor during the lesson.

Strongly Agree

Somewhat Agree

Neither agree nor Disagree

Somewhat Disagree

Strongly Disagree

21. I would like to meet the CBI instructor in person.

Strongly Agree

Somewhat Agree

Neither agree nor Disagree

Somewhat Disagree

Strongly Disagree

22. I think the CBI instructor is like an old friend.

Strongly Agree

Somewhat Agree

Neither agree nor Disagree

Somewhat Disagree

Strongly Disagree

Appendix C

Part III. Motivation Questions from On-Line Testing

Please think about each statement in relation to the instructional materials you have just studied, and indicate how true it is. Give the answer that truly applies to you, and not what you would like to be true, or what you think others want to hear.

Think about each statement by itself and indicate how true it is. Do not be influenced by your answers to other statements. Thank you.

23. When I first looked at this instruction, I had the impression that it would be easy for me.

Not True

Slightly True

Moderately True

Mostly True

Very True

24. There was something interesting at the beginning of this instruction that got my attention.

Not True

Slightly True

Moderately True

Mostly True

Very True

25. This material was more difficult to understand than I would like for it to be.

Not True

Slightly True

Moderately True

Mostly True

Very True

26. After the introductory information, I felt confident that I knew what I was supposed to learn from this instruction.

Not True

Slightly True

Moderately True

Mostly True

Very True

27. Completing the questions following the instruction gave me a satisfying feeling of accomplishment.

Not True

Slightly True

Moderately True

Mostly True

Very True

28. It is clear to me how the content of this instruction is related to things I already know.

Not True

Slightly True

Moderately True

Mostly True

Very True

29. Completing this instruction successfully was important to me.

Not True

Slightly True

Moderately True

Mostly True

Very True

30. The quality of the instruction helped to hold my attention.

Not True

Slightly True

Moderately True

Mostly True

Very True

31. This instruction was so abstract that it was hard to keep my attention on it.

Not True

Slightly True

Moderately True

Mostly True

Very True

32. As I worked on this instruction, I was confident that I could learn the content.

Not True

Slightly True

Moderately True

Mostly True

Very True

33. I enjoyed this instruction so much that I would like to know more about this topic.

Not True

Slightly True

Moderately True

Mostly True

Very True

34. The content of this instruction is relevant to my interests.

Not True

Slightly True

Moderately True

Mostly True

Very True

35. This instruction has things that stimulated my curiosity.

Not True

Slightly True

Moderately True

Mostly True

Very True

36. I really enjoyed studying this instruction.

Not True

Slightly True

Moderately True

Mostly True

Very True

37. The amount of repetition in this instruction caused me to get bored sometimes.

Not True

Slightly True

Moderately True

Mostly True

Very True

38. The content and style of presentation in this instruction convey the impression that its content is worth knowing.

Not True

Slightly True

Moderately True

Mostly True

Very True

39. I learned some things that were surprising or unexpected.

Not True

Slightly True

Moderately True

Mostly True

Very True

40. After working on this instruction for a while, I was confident that I would be able to pass a quiz on it.

Not True

Slightly True

Moderately True

Mostly True

Very True

41. This instruction was not relevant to my needs because I already knew most of it.

Not True

Slightly True

Moderately True

Mostly True

Very True

42. The style of the presentation was boring.

Not True

Slightly True

Moderately True

Mostly True

Very True

43. I could relate the content of this instruction to things I have seen, done, or thought about in my own life.

Not True

Slightly True

Moderately True

Mostly True

Very True

44. It felt good to successfully complete this instruction.

Not True

Slightly True

Moderately True

Mostly True

Very True

45. The content of this instruction will be useful to me.

Not True

Slightly True

Moderately True

Mostly True

Very True

46. I could not really understand quite a bit of the material in this instruction.

Not True

Slightly True

Moderately True

Mostly True

Very True

47. The good organization of the content helped me be confident that I would learn this material.

Not True

Slightly True

Moderately True

Mostly True

Very True

48. It was a pleasure to work on such well-designed instructional lessons.

Not True

Slightly True

Moderately True

Mostly True

Very True

Appendix D

Part IV. Satisfaction Questions from On-Line Testing

My overall rating of this instructional series is:

49. Good Moderately Good Indifferent Moderately Bad Bad

50. Valuable Moderately Valuable Indifferent Moderately Worthless Worthless

51. Admirable Moderately Admirable Indifferent Moderately Deplorable Deplorable

52. Important Moderately Important Indifferent Moderately Unimportant Unimportant

53. Significant Moderately Significant Indifferent Moderately Insignificant Insignificant

54. Relevant Moderately Relevant Indifferent Moderately Irrelevant Irrelevant

Appendix E

Achievement Questions from Lesson 1

*Questions 1-3 were name, classification, and sex. Therefore this section begins with question four.

4. Which is TRUE regarding exclusive talk?
 - a. outcome matters more than intention
 - b. we can only be responsible for the messages we mean to send
 - c. we ought to try to be more mindful of our talk so we can make it more exclusive
 - d. it makes everyone feel part of the conversation
 - e. all of the above

5. People who use exclusive talk probably do so because of:
 - a. security
 - b. sensitivity
 - c. lack of awareness
 - d. heterosexism
 - e. all of the above

6. “We will get this project started when we all come back from Christmas vacation,” is an example of:
 - a. inclusive talk
 - b. downward talk
 - c. exclusive talk
 - d. other talk
 - e. none of the above

7. Inclusive talk occurs when
 - a. people are speaking in a language they share when they are surrounded by others who don't share that language.
 - b. a person speaks in a way that assumes that the terms of her/his own religious group are accepted by everyone.
 - c. people who are using the same "lingo" alter their language so that others can participate in the conversation.
 - d. a person talks about her/himself without letting others play a part in the conversation.
 - e. none of the above
8. What are the 3 major categories of exclusive talk?
 - a. sexist, heterosexist, and gender neutral
 - b. gender biased, racist, sexist
 - c. sexist, heterosexist, and gender biased
 - d. sexist, racist, and heterosexist
 - e. none of the above
9. What are four reasons, discussed in this lesson, why people might engage in exclusive talk?
 - a. Egocentricity, Gossip, Disconfirmation, Insecurity
 - b. Insecurity, Egocentricity, Insensitivity, and Lack of Awareness
 - c. Insecurity, Insensitivity, Disconfirmation, Lack of Awareness
 - d. Criticism, Insensitivity, Disconfirmation, Egocentricity
 - e. None of the above

10. A good communicator is someone who makes an effort to use good exclusive talk.
- a. True
 - b. False
11. “I would like you to come to our function next Saturday. Why don’t you bring a friend or partner?” This is an example of:
- a. Exclusive talk
 - b. Downward talk
 - c. Inclusive talk
 - d. Other talk
 - e. None of the above
12. When people talk as if they believe that things revolve around them and that what they have to say should matter a great deal to others, they are speaking out of:
- a. egocentricity
 - b. simplicity
 - c. insensitivity
 - d. insecurity
 - e. lack of awareness

13. When people realize that their speech leaves out certain members of the conversation group but they do not care, they are speaking out of _____.
- a. egocentricity
 - b. simplicity
 - c. insensitivity
 - d. insecurity
 - e. lack of awareness

Achievement Questions from Lesson 2

1. Someone pointing out a person across a crowded room says, "She's the one with the long blond hair." This is an example of sexist talk based on:?
- a. gender-biased
 - b. descriptors
 - c. sex-role stereotype
 - d. discrimination
 - e. none of the above
2. Which of the following is NOT an example of sexist language?
- a. A Justice of the Peace saying, "I now pronounce you man and wife."
 - b. A billboard about responsibility that says, "If a man gets a girl pregnant and then flies the coop, he's chicken."
 - c. Saying that a family "dies out" if there are no male children.
 - d. Referring to someone as a "white nurse."
 - e. None of the above

3. Identify the gender-biased term below:
 - a. she/he
 - b. humankind
 - c. manmade
 - d. police officer
 - e. all of the above

4. Sexist talk includes language that ...
 - a. describes women in terms of strength
 - b. describes men in terms of their occupation
 - c. refers to both women and men in terms of their titles
 - d. puts men in domestic roles
 - e. All of the above

5. A female customer asks a sales clerk to get a price on an item and the clerk responds, "Yes, sugar just bring it over here." This is an example of sexism based on:
 - a. lack of awareness
 - b. sex-role stereotype
 - c. terms of address
 - d. gender-biased
 - e. none of the above

6. Sexist talk is a form of Inclusive talk.
 - a. True
 - b. False

7. The four categories of sexist talk are:
 - a. descriptors, sex-role stereotypes, terms of address, and discrimination
 - b. discrimination, sex-role stereotypes, denigration, and gender-biased terms
 - c. gender-biased references, descriptors, sex-role stereotypes, and denigration
 - d. gender-biased references, descriptors, sex-role stereotypes, and terms of address
 - e. none of the above

8. A man states after being asked over to a couples home for dinner, "I'm sure your wife will prepare a wonderful meal for me." This is an example of sexism based on:
 - a. lack of awareness
 - b. sex-role stereotype
 - c. terms of address
 - d. gender-biased
 - e. none of the above

9. Identify the claim made by this lesson.
 - a. outcome matters more than intention
 - b. intention matters more than consequences
 - c. intention does not matter
 - d. outcome does not matter
 - e. outcome and intention matter equally

10. Identify the sentence that uses gender-neutral language.
- a. After the preschool class visited the fire station, all the children wanted to play fireman.
 - b. On Career Day we'd like everyone to bring a parent in to talk about their work.
 - c. It was the first space shuttle launch in the history of mankind.
 - d. Cathy, I'd like you to type up these vouchers for Mr. Jablonski and myself.
 - e. The beautiful mother of three is who won the mayoral election.

Achievement Questions from Lesson 3

1. Heterosexist language is used to disparage gay men and lesbian women.
- a. True
 - b. False
2. All of the following are examples of heterosexism EXCEPT:
- a. Chris looks like someone you would probably date, except that, unlike you, Chris is homosexual. When talking about Chris to your friend, you say, "What a waste!"
 - b. Saying "Gay men are easy to talk to because they're so open with their feelings."
 - c. Identifying that Chris is gay when your friend asks you if Chris might date her.
 - d. Saying that someone is a lesbian because she "can't get a man."

3. Racist language is:
 - a. using a term to describe a person or a group of people
 - b. assuming a whole race has certain behaviors bases on observations of a few in that race
 - c. speaking of others in stereotypical ways
 - d. language which identifies the race of persons when it is not relevant
 - e. all of the above

4. “My new neighbor from Mexico will probably have all his relatives moving in soon.” This is an example of what type of language?
 - a. sexist
 - b. racist
 - c. downward
 - d. inclusive talk
 - e. none of the above

5. When you are speaking to a group and one person feels excluded from your talk, that is their problem and you are not responsible.
 - a. True
 - b. False

6. All of the following are forms of racism EXCEPT:
 - a. Ignoring negative behaviors of people in your own racial or ethnic group.
 - b. Assuming that the whole of a particular group behaves in some way when you only have evidence of some in the group behaving in that way.
 - c. Identifying the race of a person in conversations where race is not relevant.
 - d. Saying “Most of the Asian people that I know like Chinese food.”
 - e. Pointing out one person in a large group by saying, “it’s the Indian guy”

7. Being a good communicator means:
 - a. Recognizing that we all are excluded at some time or another, and that you should worry more about getting your point across than you do about excluding people.
 - b. taking a personal inventory of your communication patterns and being willing to make shifts.
 - c. realizing that if it would not offend you, it probably would not offend others.
 - d. understanding that if your language is not highly offensive to someone, then it is probably all right.
 - e. seeing that you cannot be accountable for the consequences that come about as a result of your communication.

8. All of the following are examples of exclusive language EXCEPT:
- a. calling one of your straight friends “fag” as a form of teasing.
 - b. A speaker saying “This may not matter to you now, but when you get married it will matter” when speaking to students at a high school.
 - c. When you come to the luncheon, you can come alone or bring a partner.
 - d. Saying to a girl who wants to be a famous singer when she grows up, “What are you going to do about your husband? You can’t take him on the road with you all the time.”
 - e. I have a hectic schedule this semester. I have 21 hours including physics. My physics teacher is gay.
9. As a communicator, you are accountable...
- a. when people feel excluded from your talk
 - b. making your talk reflect your understanding that there are a variety of races, ethnicities, sexualities, nationalities, genders that make up the real world.
 - c. when people feel invisible because you don’t include them in your references.
 - d. for the outcomes of your language choices
 - e. all of the above
10. Your new roommate is an international student from Korea. I’ll bet she’s very sweet and very smart” is a racist comment.
- a. True
 - b. False

Appendix F

Directions for Participants

**These instructions were read out loud prior to each testing group.*

Thank you for agreeing to participate in this study. You will notice three icons on your computer desktop: Lesson 1, Lesson 2, and Lesson 3. When I instruct you to begin, you will double click on the lesson 1 icon. The instructional presentation will begin; you will go through the entire lesson 1 instruction. Once you have completed lesson 1 your browser will automatically go to an on-line questionnaire. You will first enter your name, last name, followed by a comma and then first name.

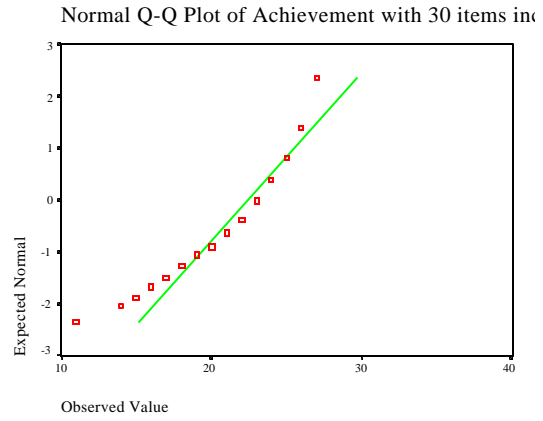
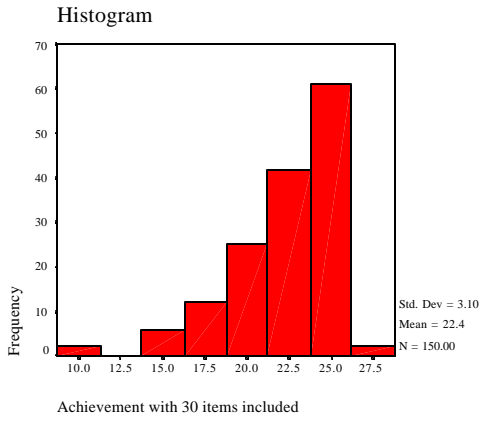
You will then complete the questions and click on the submit button. After you have successfully submitted your answers you may close the browser and double click on Lesson 2. Again, once you have completed lesson 2, the on-line questionnaire for lesson 2 will automatically be displayed. Answer the questions and again submit your answers and close the browser.

Last, you will double click on lesson 3 and answer the on-line questions for lesson three. There also will be additional questions regarding your instructional experience. Please take time to answer these questions carefully. If you have headphones connected to your computer please place those comfortably on your head before clicking on Lesson 1. This instruction could last from one hour to an hour and a half. People will be finishing and leaving at different times, so don't let that distract you.

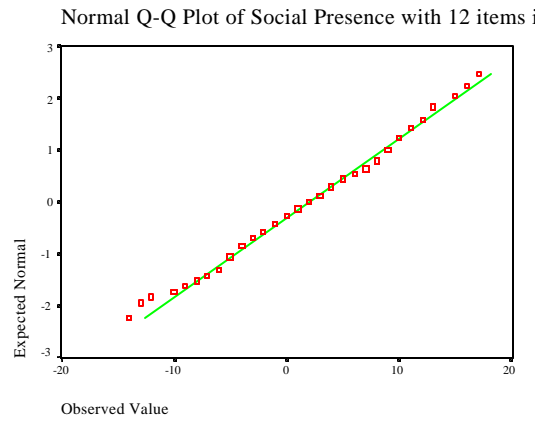
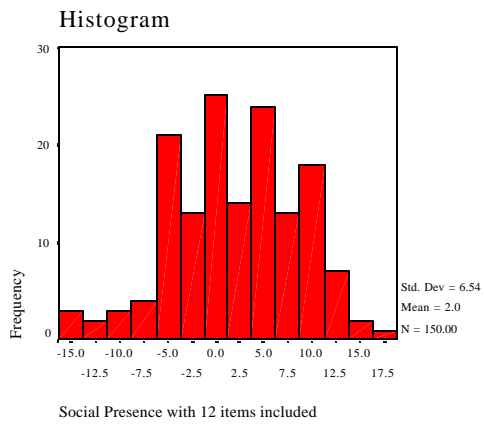
If you have any problems with the instruction please raise your hand and I will do my best to assist you. I will be walking around the room a few times during your instruction. Take your time and again thank you for your participation.

Appendix G

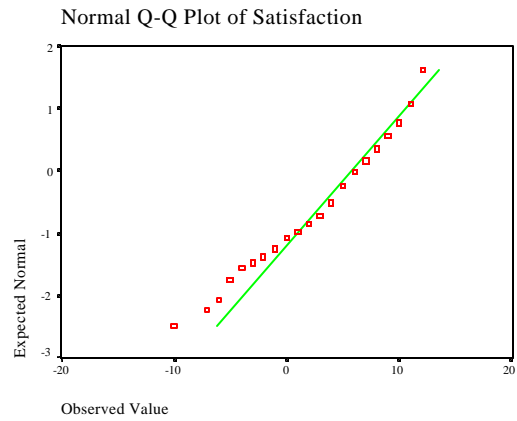
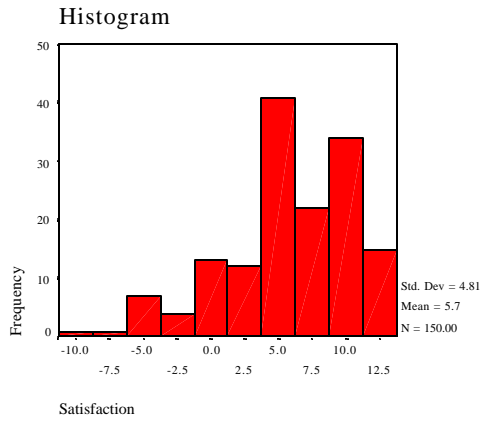
Achievement



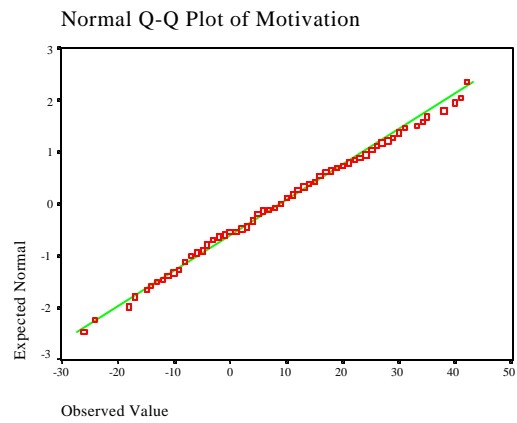
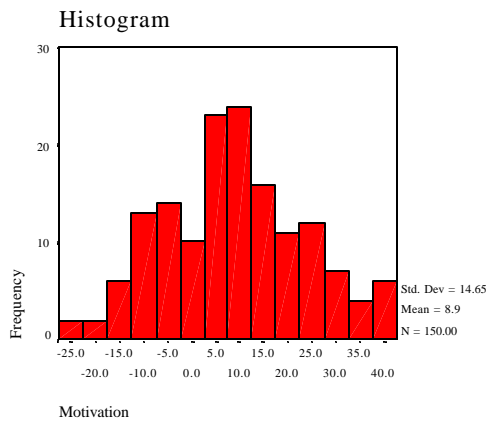
Social Presence



Satisfaction



Motivation



V. Curriculum Vita

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Born: August 1, 1963
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Educational Background:

1998-Present	Virginia Polytechnic Institute and State University -Coursework/Research toward degree in Instructional Technology
1991-1994 M.A.	East Tennessee State University, Johnson City, TN -Instructional Technology
1981-1985 B.S.	East Tennessee State University, Johnson City, TN -Communications/Broadcast

Teaching Experience:

Assistant Professor: Milligan College, 1991 – Present
Professional Experience

Production Manager: WJHL-TV (CBS Affiliate), 1981-1991
Johnson City, TN

Administrative Experience:

Chair, Technology Applications Committee-Milligan College 1996-97
WJHL-TV-Managing a department of 15.

Teaching Specialties:

Introduction to Television Production
Advanced Television Production
Writing for Broadcast Media
Desktop Publishing
Introduction to Computers
Video Project Design
Non-Linear Video Editing

Software Proficiency:

Windows 95	Adobe PageMaker 6.5
Microsoft Office 7.0	Adobe Photoshop 5.5
Media 100 LE (Power Mac 9600)	Adobe Premiere 6.0

Courses in Major Field:

Principles of Instructional Design
Producing Instructional Resources I
Producing Instructional Resources II
Media Production (Video Editing)
Microcomputer Applications Instruction
Applied Instructional Techniques
Methods of Educational Research
Program and Product Evaluation
Web Based Instruction
Virtual Reality on the Web
Digital Audio/Aural Learning

Thesis/Publication:

The Effects of Eye-Contact in a Television Interview:
An Experimental Study, 1994

Committee Assignments:

Library Committee-2000-2001
Technology Applications Committee, Chair, 1996-97
Computer Applications Committee, 1995-00
Instructional Technology Subcommittee, Chair 1996
Performing Arts Center Advisory Committee
FM Radio Station Advisory Committee

Convention/Workshop Attendance:

Appalachian College Association Technology Summit-3rd Annual
October 13-14, 2000-Knoxville, TN
Appalachian College Association Technology Summit-2nd Annual
October 21-23, 1999-Knoxville, TN
Appalachian College Association/Teaching, Learning, Technology Roundtable-5th
Annual Summer Institute
July 8-12, 1999-College of William and Mary, Williamsburg, VA
International Conference on Teaching and Learning Conference-
April 15-18, 1999-Jacksonville, FL-Paper Presentation: Web-Based Instructional
Technology Masters Program for Professional Educators
International Visual Literacy Association 1998 Annual Conference
October 21-24, 1998-Athens, GA
Appalachian College Association Technology Summit-October 1-3, 1998-Knoxville, TN
The Ninth International Conference on College Teaching and Learning,
April 15-18, 1998-Jacksonville, FL
Appalachian College Association Workshop-Teaching, Learning, Technology
Roundtable, December 1997- Kingsport, TN
Appalachian College Association Workshop/PhotoShop 4.0-October 25-27, 1997-
Kingsport, TN

Convention/Workshop Attendance (continued):

Association of Small Computer Users in Education, 1997-Myrtle Beach, SC
National Association of Broadcasters 1997-Las Vegas, NV
Consolidated Media Systems Convention 1997-Nashville, TN
Broadcast Education Association 1997-Las Vegas, NV
Institute of Academic Technology 1996-Richmond, VA
PageMaker Workshop 1996-Johnson City, TN
National Association of College Broadcasters 1995-Providence, RI

Honors, Certificates & Professional Affiliations:

Phi Kappa Phi- (Virginia Tech Academic Honor Society)
Tri-Cities Computer Club, Inc.
International Visual Literacy Association
Delta Kappa Gamma
Broadcast Education Association
International Television Association-Secretary 1994
National Association of College Broadcasters
National Religious Broadcasters
Gamma Beta Phi (ETSU Academic Honorary Society)

Grants/Awards:

- Received Appalachian College Association Grant for Summer 2000 to continue Research toward Ph.D. in Instructional Technology from Virginia Tech, Blacksburg, VA
- Received Appalachian College Association Grant for 1998-99 Academic Year to complete course work toward a Ph.D. in Instructional Technology from Virginia Tech, Blacksburg, VA
- Received Appalachian College Association Grant for Summer 1999 to begin Research toward Ph.D. in Instructional Technology from Virginia Tech, Blacksburg, VA

National School Public Relations Association-1989

-“Electronic Media Award of Excellence”

Tri-City Metro Advertising Federation 1988-89-Bronze Award

-“Summertime Fun”-:30 second Promotional Piece

National Recruitment Personnel Association-1988-Silver Award

-“A Distinct Difference for You for Life”

-Commercial for East Tennessee State University-:30 seconds

Video Productions:

Virginia Tech-Effective Lighting Principles for Video-10 Minutes-1998

Perspective- Weekly 30 Minute Christian News Show aired each week during spring semester on local cable station-1991-present

Milligan College Summer Arts Camp-Produced 4-15 minute videos 1996-1997

Marshall Leggett Retirement Video- 20 Minutes-1997

Emmanuel Ministry Internship Training Program Video-20 Minute-1997

Performing, Visual and Communicative Arts Recruitment Video-15 Minute-1997

Video Productions (continued):

Milligan College Women's Tennis Recruitment Video- 12 Minute-1996
Milligan College Informational Video-4 Versions-20 Minutes Each-1995
Milligan College Computer Technology Informational Video- 12 Minute-1995
Milligan College Women's Basketball Recruitment Video- 12 Minute-1995
The Tennessee Museum- 10 Minute Video-In cooperation with the Johnson City School System-1995
Prison Ministry Video- 3 Part Series-Training for Prison Ministry-30 Minutes Each-1995
East Tennessee Christian Home Video- 15 Minute-1994
Milligan College Computer Network Training-30 Minute Training Video-1994
Milligan College Christmas Special-30 Minute Show
-Aired on Cable Station-1994
Seeger Chapel Fund Raiser Video- 15 Minute-1993
Johnson City Symphony- 15 Minute Fund Raiser Video-1992
Emmanuel School of Religion- 20 Minute Recruitment Video-1991
Organizational Management Program-2-30 Second Commercials-1991

