

A COMPARISON OF ONLINE TEXT AND  
SUBJECT VIDEO IN RELATION  
TO LEARNING STRATEGY

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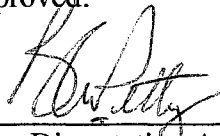
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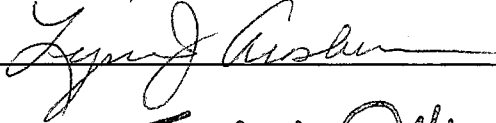
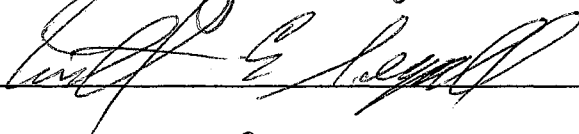
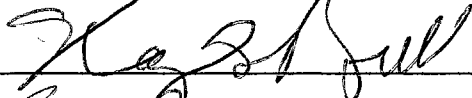
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## CHAPTER I

### INTRODUCTION

Is there any interaction between the medium by which a student is taught and that student's aptitude? During the 1970's, numerous studies were conducted to determine the effectiveness of video compared to other media such as text. In many of those studies, the results were non-significant (L. Ausburn, personal interview, February 19, 2002). A better question may be, "with what types of students is video effective, and is text effective?"

There are three learning strategies defined by the ATLAS instrument (*Assessing The Learning Strategies of Adults*). These learning strategies include: Engager, Navigator, and Problem Solver. Since many students are currently taking courses online, it may be productive to determine which types of learning strategy students perform well with online text. Also, since many teachers use videotapes in their curriculum, and may eventually use it online, it may be beneficial to examine the effectiveness of this medium with the various learning strategies as well.

Currently, most on-line asynchronous education courses are text-only with some including only basic graphics (Bourne, McMaster, Rieger, & Campbell, 1997; Carnevale, 2000a; Contra Costa College, 2001; Willis, 2001). One reason for text-only online courses is the limitations of storage from the instructor's software program. A second reason is free or low cost programs offered to schools which are text-only courses (Blackboard Inc., 2000). Some of the courses are text-only because some of the teachers believe that simply placing text on a web site without any teacher/student

interaction is teaching (Carnevale, 2000b; Carnevale, 2000c; Winn, 1998). The same can be said for teachers who present videos to their class and do not follow them with class discussion of the subject matter presented. Probably the major reason online courses are text-only is due to the fact that most student-owned computers are incapable of downloading video or large graphic files in a timely manner. According to recent research, only 24% of U.S. home computers are connected to high bandwidth modems (PC World.Com, 2001).

In spite of these facts, there are numerous studies that indicate many problems with text-only as a sole learning medium (Bourne, 1997; Carnevale, 2000c; Dringus, 2001; Hara, 2000). Several studies indicate that there are learners who do receive knowledge from such a medium, especially when teachers are dedicated to nurturing and interacting with students. However, there are also many studies that indicate a large portion of the population have learning styles and strategies that respond to visual teaching (Carnevale, 2000b; Childers, 1997; Glass, 1997; Helfand 1997; Lavelle, 1992; Montgomery, 1995; Nova, 2000; Ouellette, 2001; Walker, 1993; WGBH, 2000a, b, & c).

### Statement of the Problem

Many online teachers are using only text for their classes, expecting it to suffice with all types of students as an instructional design (Carnevale, 2000c). However, research has shown that various students use different learning strategies to achieve their learning tasks. If this is true, simply placing text online may not be as effective with some students as others (Conti, 1999; Conti, 2000; McKeachie, 1978; Weinstein, 1988).



Learning strategies are techniques or specialized skills that the learner has developed to use in both formal and informal learning situations (McKeachie, 1978). Weinstein (1988) defines learning strategies as behaviors and thought that a learner engages in during learning, and that are intended to influence the learner's encoding process. One instrument revealing this is ATLAS, *Assessing The Learning Strategies of Adults*. ATLAS has shown that various groups of learners can be distinguished by learning techniques or strategies they use. These strategies are specialized skills that the learner has developed and used in various learning situations. ATLAS identifies individuals with these various skills as *Navigators, Engagers and Problem Solvers*. Studies using *ATLAS* have shown a distribution of these groups is approximately equal in the general population, with 33.3% in each learning strategy (Conti, 2000).

The premise of ATLAS is that different people use different learning strategies. If this is true, a "one size fits all" instructional design is probably not appropriate in many circumstances. *Navigators* are achievers who plan and organize their learning. They identify the "big picture" and their resources, then make a schedule to reach their goals. They prefer timelines and deadlines with outlined objectives and expectations. They appreciate summarization of main points in lessons (Conti, 1999). *Navigators* also make lists and try to complete everything on their lists. They dislike working in groups, preferring instead to work individually (James, 2000). *Navigators* also try to use the most appropriate resource instead of the most convenient. In one study it was found that they recognized limitations of a resource, such as potential bias or timeliness, as important considerations (Turman, 2001).

*Problem Solvers* are curious, inventive, intuitive and able to generate numerous answers to a question. They see multiple sides to an issue and therefore have an aptitude for analysis. They enjoy experiments, investigations and detecting various ways to solve a problem. They like deadlines, but want to execute assignments in their own way. They prefer teachers who tell stories and give plenty of practical examples. They thrive with experimentation and kinesthetic activities (Conti, 1999). One study found that they like brainstorming activities and time to think through how best to proceed with an activity. This study also confirmed that they like hands-on activities and do not like to be interrupted during learning projects (James, 2000). An additional study confirmed this as well and noted that Problem Solvers also enjoy the independence of searching the Internet for additional information and options (Turman, 2001).

*Engagers* enjoy learning in a relationship with the teacher, the subject matter and the environment. They especially enjoy collaborative learning because of the connections with people. They like relationship-based learning which will result in self-development. Conti (1999) found that Engagers use visual images to facilitate learning. Another study found that Engagers prefer to use visual aids to enhance memory recall. Such learning tools include appointment books, highlighting text, and diagrams (Turman, 2000).

According to Conti (1999) many Engagers identify themselves as visual or kinesthetic learners with their focus on meeting internal needs rather than external standards. A study by James (2000) study found that Engagers have a strong dislike for, and avoidance of, being bored, a need to interact with people, and a tendency to look to other people as the first source of information.

In a dissertation study done by Ghost Bear (2001) at Oklahoma State University, the distinctive traits of the three learning strategies remained accurate across all four of her studies which incorporated the ATLAS instrument in her design. Her study showed that the original ATLAS categories are stable. In her study, ATLAS was used with students using eBay online auction. Several observations were made by Ghost Bear regarding characteristics of the three learning strategies.

*Navigators* listed speed and getting additional information about auction items as advantages. They had concerns about legal problems and inefficiencies in others. They placed value on using external tools and completing more research. They also valued rules, regulations, and control. Evaluation and feedback were important to them. They were more self-critical and self-conscious while learning, than the other subjects. They had a tendency to desire complete control of their learning plans and to rarely veer from those plans once established. They valued external tools and were uncomfortable with uncertainty such as last minute bidding. They attempted their learning activities with much sincerity and gave each activity their utmost effort. They expected and demanded more of themselves than others did, were self-conscious and hypercritical when they believed they had made mistakes. Navigators strived for improvement to "plan their work and work their plan". They tended to stay with their predetermined plan regardless of that plan's success (Ghost Bear, 2001).

*Problem Solvers* perceived detailed lists and descriptions in the auction as advantages. They were very confident and showed an affinity for detail and descriptive stories about their learning experiences on eBay. These critical thinkers were sustained by the ongoing modification and revision of their learning plans in relationship to their

evaluation of their own learning process. They were partial to the exploration and adventure that eBay and the Internet offered. One Problem Solver stated, "I've always had good skills and logical thinking...high confidence in that area." Problem Solvers were clearly the most descriptive and detailed in their answers of the three groups. They were storytellers. They elaborated extensively and would add delightful detail to their stories about their experiences on eBay. They exemplified the adage "Ask them what time it is, and they'll tell you how to build a clock". The actual process of telling the story intrigued and delighted them, rather than the completion of the story (Ghost Bear, 2001).

*Engagers* tended to report strong feelings about the importance of good communication. They were concerned with competition with other bidders and with being bored with the details of email. They valued personal interaction and relationships with others and were generally optimistic in their opinions of others. These were enthusiastic learners who enjoyed emotionally rewarding new tasks and challenges. They were thrilled with the eBay activities as long as the desired item or the time involved was worth the effort. They chose to provide short answers or no answers to questionnaire requests that did not meet their criteria for attention. They frequently took the path of least resistance and used any tools that would alleviate tedious details or boredom. They frequently reported using eBay's short-cut features that would get them the most amount of information in the shortest amount of time. In this study, they were inclined to frequently express excitement and joy in their learning processes. They were eager to share what they learned with others. When Engagers decided that a learning activity was worthwhile to them, they participated with full enthusiasm and utmost energy, and they

encouraged others to do likewise. They used more words and phrases that were packed with internal emotions such as "like" and "love" in their descriptions (Ghost Bear, 2001).

Adding video to a course may add to the effectiveness of instruction with some of these learners. The following questions are worth exploring:

Since Navigators like to control and manipulate their learning resources, will they perform better with text online which they can manipulate? Or will they be satisfied to passively observe a video as it is presented to their class? Since Navigators like to plan to reach their goals, which medium can they control more? Which one will allow them to build a plan to achieve their goals?

Since Problems Solvers are intuitive and see multiple sides of questions, will they be satisfied with text online? Or will they perform better with the video which offers not only the dialogue, but tone of voice, gestures, facial expressions, body language, etc.? Which one of these media will be more enjoyable to them, since they prefer storytelling and practical examples? Since they enjoy kinesthetic learning, do they view either medium as more "hands-on" than the other?

Since Engagers are interpersonal learners who enjoy connections with people, and use visual images to facilitate learning, will they perform better by viewing people interacting and discussing issues on video, or after reading text online? Do they *enjoy* reading a discussion online, or listening and watching people discuss issues on videotape?

It should be noted that video in this study is a professionally produced program, not merely a lecture recorded on videotape. A professionally produced subject video can be concise, entertaining, and informative, unlike those recorded at home with

the familiar "camcorder".

### Research Questions/Hypotheses

The following research questions will be addressed:

Research Question 1: Which types of learners as measured by ATLAS, gain more knowledge from online text, and which types gain more knowledge from a subject video?

Null hypothesis number 1: There is no significant difference in the amount of knowledge gained by Navigators from online text, and that gained by Navigators from a subject video.

Null hypothesis number 2: There is no significant difference in the amount of knowledge gained by Engagers from online text, and that gained by Engagers from a subject video.

Null hypothesis number 3: There is no significant difference in the amount of knowledge gained by Problem Solvers from online text, and that gained by Problem Solvers from a subject video.

Research Question 2: Is the distribution found in previous ATLAS studies identical to that found in this study?

Null hypothesis number 4: There is no significant difference in the distribution found in this study, and the distribution found in previous ATLAS studies.

To test the first three hypotheses, all subjects were given a pretest and post-test online containing questions pertinent to the subject matter used in the treatments. The subject groups were picked by random with the toss of a coin to determine which groups would receive which treatment. One group accessed text of a panel discussion on the Internet by using individual computers. The other group viewed a subject video as a

class. Straight difference scores on the pre-and post-tests were analyzed using a one-way ANOVA and the Friedman non-parametric test. Hypothesis four was tested with a chi-square test.

### Significance of the Study

Although there are numerous attitudinal studies concerning online distance education courses, academic performance data is rare (Bourne, 1997; Carnevale, 2000a). Since the size of bandwidth accessible to most home computers is increasing, it is estimated that in the near future, most people will be able to access video on their home computer (*What is StarBand*, 2000; *DirectDuo*, 2000). If this is the case, subject videos may offer a valuable addition for distance education on-line courses. Setting aside the student's preferences for on-line media, if it can be shown that subject videos do, in fact, enable some students to learn more, this may have a significant impact on distance education instructional design.

### Definition of Terms

**ATLAS** - *Assessing The Learning Strategies of Adults*. Shows various groups of learners can be distinguished by learning techniques or strategies they use. ATLAS identifies individuals with these various skills as *Engagers, Navigators or Problem Solvers*.

**Engager** - As measured by ATLAS, a person who uses a learning strategy which includes interpersonal learning with the internal goal of enjoyment and self development.

**Learning Strategy** - techniques and skills developed by an individual through learning experiences.

**Navigator** - As measured by ATLAS, a person who uses a learning strategy which includes planning and scheduling in order to achieve specific goals.

**Performance Score** - In this study straight difference scores were used, the difference between the score on a pre-test and the score on a post-test.

**Problem Solver** - As measured by ATLAS, a person who uses a learning strategy which includes experimenting in order to find various solutions to a problem.

**Subject video** - Structured and edited video production dealing with a specific subject. Subject videos may include documentaries, instructional dramas, expert panel discussions, etc.

**Web-based** - content posted on the Internet.

### Limitations

One limitation of this study was the small number of subjects used in the study thereby limiting the internal validity. Sample size was too small to determine normality for Navigators or Problem Solvers thereby precluding parametric statistical analysis for these groups. Another limitation was that the majority of subjects were Education majors. Education majors may or may not be concentrated in a particular learning strategy. This may have an affect on external validity. The findings from these subjects may not be applicable to other college majors.

Lastly, the age range of the subjects was narrow from 18 - 24 years. At this age, the students would have fewer life experiences than those of an older group. Fewer life experiences may affect learning strategy and possibly preferences for text or video.

These limitations may affect the generalizability of the results.

### Organization of the Study

Chapter II presents a review of literature related to the study. The concept is explained of examining text and subject video as an aptitude-treatment-interaction with



learning strategies. In addition to literature on these subjects, a summary of technology distance learning is given due to the practical application of online text and online video for the future.

Chapter III describes the study's methodology, subjects, instruments including *ATLAS*, and design procedures. Chapter IV gives the results of the experiment including statistical analysis, mean performance scores, follow-up interviews, treatment preferred, and subject comments regarding formatting of the online text and subject video.

Chapter V contains the conclusions of the study. Further comments by the subjects concerning text and subject video are offered in this chapter as well as recommendations for future research on this topic.

## CHAPTER II

### REVIEW OF THE LITERATURE

#### Learning from Text

People have learned from writings for thousands of years. But the way they need to learn from them today may be very different from how they learned from them a hundred years ago. In the early part of the twentieth century, education focused on the acquisition of literacy skills: simple reading, and writing. It was not the general rule for educational systems to train people to think and read critically, to express themselves clearly and persuasively, or to solve complex problems. Now, at the beginning of the twenty-first century, these aspects of high literacy are required of almost everyone in order to successfully negotiate the complexities of contemporary life (Bransford, Brown, & Cocking, 1999).

One of the hallmarks of the new science of learning is its emphasis on learning with understanding. Students often have limited opportunities to understand or make sense of topics because many curricula have emphasized memory rather than understanding. Textbooks are filled with facts that students are expected to memorize, and most tests assess students' abilities to remember the facts. Information and knowledge are growing at a far more rapid rate than ever before in the history of humankind. The sheer magnitude of human knowledge renders its coverage by education an impossibility; rather, the goal of education is to help students develop the intellectual tools and learning strategies needed to acquire the knowledge that allows them to think productively (Bransford, Brown, & Cocking, 1999).

How does one learn from a book or text? What is the process? Reading is not a natural process but a skill which is acquired. Though language, both heard and spoken, is instinctive, reading is not, and the transcoding of printed words into language must be taught and learned if it is acquired. For some children this is quite difficult (D'Arcangelo, 1999). Some studies (McCutchen, Abbott, Green, Beretvas, Cox, Potter, Quiroga, & Gray, 2002) indicate that at least 20% of the American population struggle with this process.

What do we really know about how the brain learns to read? Neuroscientist and professor of pediatrics at Yale University School of Medicine, Sally Shaywitz, is codirector of the Yale Center for the Study of Learning and Attention. For 30 years, she has focused on understanding the brain mechanisms involved in reading. She found that whereas speaking is natural, reading is not. Children do not automatically read. They have to learn how to do it. Every society has some form of spoken language. A baby placed in a speaking environment will learn to speak. We do not have to teach children how to talk. Language is instinctive, but reading is not. Reading is a recent development. Not every society reads. There is no little reading center in the brain. The neurocircuitry is not originally set up to allow us to read (D'Arcangelo, 1999).

However, humans do have the capacity to read. Over time, we have learned to use our neurocircuitry to read. The brain system that lends itself to reading is the language system. To read, a child must use his robust language system to get meaning from print. To do that, a child has to somehow transcode that print into language. In order to read, we must adapt our brain to perform in ways it was not naturally designed to work. Children have to develop the awareness that words are made up of sounds and that

print represents these sounds, or phonemes. For example, the word *bat* really has three phonemes, *b*, *a*, and *t*, and children have to develop this awareness. Then they have to develop the understanding that the letters on the page—the *b*, the *a*, and the *t*—represent these units of sound. When children reach this level of awareness, they are ready to learn to read. For some children, it is easy; for others, it is quite difficult (D'Arcangelo, 1999).

Several studies at Yale used functional magnetic resonance imaging (fMRI) technology to analyze how the brain learns to read. In one study disabled readers were compared to good readers. A difference was found in the brain activation patterns of the two groups when the task made increasing demands to break up words into their underlying phonologic structure or sound pattern. This indicates three findings: One, it shows the functional organization of the brain for reading. Two, it shows what happens when people have trouble reading. And three, it shows when the problem occurs. Knowing all of this supports the view that reading is biologically based and lends substantial support to the phonologic hypothesis of how we read and why some people can not read (D'Arcangelo, 1999).

Although we experience language as a whole phenomenon, language behavior actually draws on four functional systems in the mind: language by ear, (aural); language by mouth (oral); language by eye (reading); and language by hand (writing). These systems differ in more than the mode of sensory input or motor out-put. Each of these language systems is on its own developmental trajectory, has its own internal organization, and interacts with the other language systems to some degree at different stages of development (Berninger, Abbott, Abbott, Graham, & Richards, 2002).

Reading and writing are complex cognitive activities consisting of multiple levels

of interactive processes. Considerable research has documented that one critical precursor to literacy is a child's understanding of the alphabetic principle. Initially, in order to break the alphabetic code, children must understand that speech is composed of phonemes (the individual sound segments of speech) and also realize that the alphabet represents those phonemes. Such understanding of phonemes has come to be known as *phonological awareness* (McCutchen, *et al*, 2002).

Mounting evidence indicates that early assessments of phonological awareness are highly predictive of children's later reading and spelling. The causal nature of the relationship has been demonstrated in studies showing that phonological awareness instruction improves students' spelling and reading achievement. Successful experimental interventions have been documented with young and older students. The prognosis for poor readers does not improve with age. Without intervention, the overwhelming majority of children with poor literacy skills in first grade remain poor readers in fourth grade. One longitudinal study reported that 74% of children identified as poor readers in third grade remained poor readers in ninth grade. Some researchers estimate that literacy difficulties affect as many as 20% of all children in the United States (McCutchen, *et al*, 2002).

### Learning from Video

Are there characteristics of video which lend themselves to specific learning strategies? Videotape has two major components - audio and video. As previously mentioned, hearing and understanding language is innate in all cultures. Unlike reading (language by eye), aural is not an acquired skill but a natural process.

Video is a pictorial representation of subject matter which may well assist visual learners (Mayer & Moreno, 2002). What does research suggest concerning this graphic display in the learning process? Picture storybooks are sometimes called "twice-told tales" because both mediums, verbal and pictorial, may tell the story. Such pictures are representational in nature, illustrating what is described in the text. Further, the pictures in books may go beyond this role by adding additional details. As Patricia Gauch, an author of children's books, has observed, "Art, when it's really good, doesn't imitate or mirror the text. Rather, it adds a new dimension that goes way beyond the words" (Carney & Levin, 2002).

Research conducted primarily during the 1970s and 1980s supported the assertion that carefully constructed text illustrations generally enhance learners' performance on a variety of text-dependent cognitive outcomes. Research conducted throughout the 1990s still strongly supports that assertion. There are six roles that pictures play in storybooks. Pictures may serve to help establish setting, define characters, develop the plot, provide a different viewpoint, contribute to the text's coherence and reinforce the text. Pictures have also been found to motivate the reader, promote creativity, serve as mental scaffolds, foster aesthetic appreciation, and promote children's language and literacy (Carney & Levin, 2002).

Pictures complement text by serving as adjunct aids for "reading to learn". More than ever in our society, written prose is accompanied by illustration. There has been a tremendous increase in the number of pictures used in texts in the 1980s and thereafter as compared to those used of the 1960s. *PowerPoint* is being used by many college instructors while computer software and Internet sites routinely provide pictures and

illustrations as adjuncts to text content. It is clear that pictures (at least, well-selected or well-constructed pictures) reliably improve the reading-to-learn process. Research conducted throughout the decade of the 1990s indicates that the use of "pictures" will continue to increase in computer displays involving image maps, animations, video clips, hypermedia, and beyond. Based on a review of the empirical literature, carefully constructed illustrations continue to receive high marks as text adjuncts (Carney & Levin, 2002).

A straightforward theory is that when an explanation is presented in words, the learner can store the information in memory. Adding pictures such as animation should have no effect on what is learned if the pictures contain the same information as the words. Therefore multimedia presentations should not result in better learning than single-medium presentations. However, if some learners prefer visual presentations and others prefer verbal presentations, then a multimedia presentation would be effective in delivering information effectively to both kinds of learners. In this way, learners could select the delivery route they prefer. Thus, multimedia presentations should result in better learning than single medium presentations (Mayer & Moreno, 2002).

An alternative idea is that meaningful learning occurs when students mentally construct coherent knowledge representation. The cognitive theory of multimedia learning is based on three assumptions suggested by cognitive research: (1) dual-channel assumption - the idea that humans have separate channels for processing visual/pictorial representations and auditory/verbal representations; (2) limited capacity assumption - the idea that only a few pieces of information can be actively processed at any one time in each channel; and (3) active processing - the idea that meaningful learning occurs when

the learner engages in cognitive processes such as selecting relevant material, organizing it into a coherent representation, and integrating it with existing knowledge. Animation has great potential to improve human learning - especially when the goal is to promote deep understanding selecting, organizing and integrating images with words (Mayer & Moreno, 2002).

### Aptitude Treatment Interaction

A significant body of theory and research has been developed that demonstrates that instructional techniques affect students differently depending on their characteristics. This theory is commonly known as Aptitude X Treatment Interaction (ATI) research and has been a major focus of instructional research for the past twenty-five years. The basic concept of ATI is that instructional treatments are effective differentially due to variations in learner aptitude (Sherman, 1985). For these reasons, the ATI model was used in this study to determine which instructional treatment was more effective with various learner strategies.

Experimental research concerns itself with differences among the effects of treatments or policies. Investigators seek to establish significant main effects indicating findings such as "programmed instruction is superior to lecture-discussion". Correlational research concerns itself with the association between characteristics of persons. It tests such hypotheses as "in learning stenography, good spellers succeed more often than poor spellers". Its method is to compare the standing of persons on one variable with their standing on another. An interaction is said to be present when a situation has one effect on one kind of person and a different effect on another.



Interactional ideas are common in science. The possibility of interaction is recognized in the physical scientist's ubiquitous qualifier "other things being equal..." and in the social scientist's "Can you generalize to other groups (communities, cultures, etc.)?" (Cronbach & Snow, 1977).

Questions about interaction need especially to be asked in connection with instruction. What characteristics make instructional situations "similar", in the sense that the situations all benefit the same kind of learner? And what variables define "similar" learners, i.e., those ready to profit more or less equally from the same kind of instruction? Theories of instruction cannot be developed until instructional procedures are characterized in reasonably general and comparable terms and pertinent categorizations of learners are invented (Cronbach & Snow, 1977).

According to Snow, the aim of ATI research is to predict educational outcomes from combinations of aptitudes and treatments. He summarizes the main conclusions of Cronbach & Snow (1977) as: (1) aptitude treatment interactions are very common in education, (2) many ATI combinations are complex and difficult to demonstrate clearly, and (3) no particular ATI effect is sufficiently understood to be the basis for instructional practice. Furthermore, Snow identifies the lack of attention to the social aspects of learning as a serious deficiency of ATI research. Learning style differences can be linked to a relatively stable person or aptitude variables, but they also vary within individuals as a function of task and situation variables (Cronbach & Snow, 1977). ATI research covers a broad range of aptitudes and instructional variables; it has been used to explore new teaching strategies and curriculum design, especially in mathematics and reading (Kearsley, 2001).

In the ATI model, not only are the main effects of the instructional variable and the learner aptitude variable important, but also the interaction between them is especially noteworthy. Where interactions exist, the instructional approach that is best on the average is not best for all persons. It must be determined which treatment in combination with what type of learner produces the desired results. This interaction, if found to be significant, is scrutinized to explain and clarify the analysis of the main effects. To establish the existence of interactions requires a special style of educational-psychological research. Two broad lines of behavioral science, the experimental and the correlational, have been the standard ways of investigating instructional methods and aptitudes, respectively. Interaction research combines the two in a 2-way analysis of variance (Cronbach & Snow, 1977).

The ATI model was chosen for this study because of the learner aptitude variable (ATLAS), plus an instructional variable (text or video), and also to determine any interactions between the two. Such interaction between the main effects could explain differences in the way learners with different learning strategies might be affected differently by text and video instructional treatments. Conceptually, this model was an appropriate choice, however, the study lacked a sufficient sample for a 2-way ANOVA with three levels of learner aptitude and two levels of instructional treatment. The ATI model requires a larger sample (L. Ausburn, personal interview, April 17, 2002).

#### Assessing Learning Strategies for Adults (ATLAS)

There are three Learning Strategies identified by ATLAS; *Navigator*, *Problem Solver*, and *Engager*. *Navigators* are focused learners who chart a course for learning

and follow it. They are conscientious, high achievers who favor making logical connections through planning and organizing activities, and who rely heavily on the learning strategies of planning, identification and critical use of resources, and testing assumptions. Their planning involves knowing how to organize and identify the steps essential to the learning process. Schedules and plans are important to them and if disrupted, stress results for the Navigator. They like to have the "big picture" first so they can create schedules and deadlines to produce the necessary final results (Conti & Kolody, 1999).

Navigators hate to waste time and do not like group work. They have little tolerance for slackers, social butterflies or people who will not take the initiative. They rely heavily on identification and critical use of resources for a learning project. They want facts, not opinions. They are comfortable in the library setting, or using human resources. They use critical thinking strategy to recognize and evaluate specifics and generalizations in relation to learning. They are slow to commit to an idea because they want to test the assumptions (Conti & Kolody, 1999). Another study found that monitoring one's progress can also be important Navigators. Checking their own progress throughout the learning project seemed essential. The monitoring allows Navigators to adjust their learning plan as needed (Turman, 2000).

Although it is preferable to them to be involved in an atmosphere in which they are comfortable and which fosters their learning, they are able to rise above it and complete the learning task regardless of external factors. They look at learning as a job to do. One such student noted that at times teachers assisted him best by simply getting out of his way and letting him do the work (Conti & Kolody, 1999).

Regarding teaching methods that best facilitate *Navigator* learning: They prefer schedules and deadlines with outlined objectives and expectations. One study found that knowing the expected outcome of an assignment is quite important to Navigators. They need to have a clear understanding of exactly what the teacher expects of them. In fact, it was found that Navigators have trouble staying focused when they are not given adequate information to complete a project (James, 2000). They appreciate summarization of main points and preparing the class for the subsequent lesson. They value prompt feedback to keep them "on track", and prefer a directed well organized class with few distractions or background noise (Conti & Kolody, 1999).

*Problem Solvers* are curious, inventive, intuitive and able to generate numerous answers to a question. However, this ability to see numerous solutions can result in difficulty with making decisions. They see multiple sides to an issue and therefore have an aptitude for analysis. They do not generally do well on multiple-choice exams but prefer open-ended questions. Their critical thinking skills are sustained by the ongoing modification and revision of their learning (Conti & Kolody, 1999). Strategies such as identifying alternative solutions and envisioning the future were used by Problem Solvers in another study (Turman, 2000). Questioning was also a method mentioned by several Problem Solvers as a tool for learning. Since Problem Solvers like to test assumptions, generate alternatives, and are open to conditional acceptance, it is not surprising that they use this technique. Their use of questions in learning situations suggest an open-mindedness in the learning process (Turman, 2000).

Concerning memory, they rely heavily on external memory aids such as lists, planners and schedules. They enjoy experiments, investigations and detecting various

ways to solve a problem (Conti & Kolody, 1999). Problem Solvers have noted that helpful teachers illustrate, write down examples of how a problem is done, hand out books or pamphlets on a subject, or show a film about a subject (James, 2000).

Additional information regarding teaching methods that best facilitate *Problem Solver* learning: They like deadlines, but want to execute assignments in their own way. They prefer teachers who tell stories and give plenty of practical examples. They thrive with experimentation and kinesthetic activities. They do not like collaborative work unless they are the group leader and can set the pace. They prefer to work at their own pace with time for reflection instead of responding to rigid orders. If they believe a teacher or boss is too controlling they will perform a task as the supervisor has ordered, then later will do it their own way (Conti & Kolody, 1999).

*Engagers* are looking for fun which they define as ideas and activities worthy and valuable to their lives. They love to learn in a relationship with the subject matter, the environment and the teacher. Interaction with people such as a collaborative project is a major motivator for engagers. They enjoy intellectual connections with people. They monitor the learning experience to determine whether they are receiving enough enjoyment in the endeavor to be worth the effort. They find superficiality and details to be painfully tedious. They instead prefer relationship-based learning activities which will result in self-development. If they find a learning activity they enjoy, they will immerse themselves in it. If Engagers are not committed to a project, they will avoid it, for past experience has taught them that such efforts yield disappointing results (Conti & Kolody, 1999).

Engagers use memory application which involves using remembrances or mental images to carry out learning. Visualization, imagery, and association are strategies they use to enhance recall (Turman, 2000). They use visual images and memories to facilitate problem solving rather than memorizing material. Many identify themselves as visual or kinesthetic learners. Their focus is on meeting their internal needs rather than meeting external standards (Conti & Kolody, 1999).

Regarding teaching methods that best facilitate *Engager* learning: Teachers need to focus on what *Engagers* will gain or learn from the subject matter rather than formal standards. Engagers prefer teachers who are friendly and caring and who will allow them to do group work so they can interact and build relationships with people (Conti & Kolody, 1999). Engagers describe helpful teachers as those who care about the success and well being of their individual students. They like teachers who are fair, friendly and respectful to students. They also like teachers to be able to explain things repeatedly or in alternative formats until the student has a good understanding of the issue. Also Engagers like teachers who show that they enjoy working with students (James, 2000).

#### Possible Reactions of Learning Strategies to Treatment

*Navigators* favor logical connections, are competitive and like to win. They will rise above comfort in spite of their preferences and get the job done. One of their skills is identification. By taking notes as they either view the video or read the text, they would identify key points as they go through the material. This would give them a sense of manipulating a resource. Since they are comfortable with either library resources or human resources, it is suspected that this would indicate few differences in their

performance on text verses video. By explaining to them in the experiment that they were about to view an expert panel discussion on the subject of Effective Internet Education, and would later be asked a series of questions, this gave them the "big picture" so they had some idea of what was expected of them (Conti & Kolody, 1999).

*Problem Solvers* may perform somewhat better on video rather than text because they often prefer teachers who illustrate or use other visual aids in their teaching (James, 2000). Reading a text is one dimensional, but viewing and hearing a discussion gives them more information. They see emotion, body language, facial expressions, gestures, and hear tone of voice. Since they rely heavily on lists to reinforce memory, they may take notes with either presentation. They will probably be somewhat frustrated with either presentation since it lacks opportunity for them to experiment or investigate. Also, because of their talent for analysis, they are disadvantaged with multiple-choice pre- and post-tests (Conti & Kolody, 1999).

*Engagers* may prefer video to text because they use visual images and visual memories to facilitate problem solving (Conti & Kolody, 1999). Since they use visualization and imagery for recall, (Turman, 2001) video may assist them with memory.

Since they find detailed work to be tedious, they may not perform well with online text and may perceive a video as less work. Because they prefer interaction with people and relationship based learning, they may prefer to see interaction between people on video rather than simply reading what was said. Again the video gives more information beyond the words said. Since they are motivated toward projects that will develop self, they are likely to do well *if* they perceive the subject matter as beneficial.

## A Brief Historical Summary of Technology Distance Learning

Since 1950, the Alice Springs school of the air has been the largest distance education project in the world. Its pupils live on isolated properties scattered across the 1.3 million square kilometers of Australia. New technology has changed the school. Homes are now provided with videos, fax machines and computers. Since 1992, lessons have been beamed into homes by satellite television. Yet the two-way radio remains the main method of generating a relationship between pupil and a teacher they will hardly ever see (Williamson, 1996).

In 1971 MacKenzie and Christensen published *The Changing World of Correspondence Study: International Readings*. It presented a comprehensive overview of education at a distance through the 1960s. Enormous changes have taken place since that report. Distance education emerged in the 1970s and early 1980s as a valued component of many national educational systems in both developed and developing countries. The founding of the Open University in Great Britain more sophisticated print materials, developments in communications technology including audio, video and computer based learning, have all contributed to availability and quality of distance education (MacKenzie, & Christensen, 1971/1983).

Since the 1980s, higher education has been growing more rapidly in most countries than ever before. In fact, it has grown faster than the economies that support it. In the 1990s, in industrialized and developing countries alike, enrollments at a distance have constituted between 5 - 15 percent of the total enrollment, and in many cases distance education accounts for more than 25 percent of enrollment. The collapse of communism brought a necessary reshaping to higher education in Eastern Europe. The



end of apartheid illuminated the need for South African education to catch up with the outside world, in its institutions as well as its philosophy (Harry, 1999).

Currently, for much of the world, print, sometimes supported by broadcasting or by the use of cassettes, dominates open and distance learning. The newest open universities of Bangladesh and Tanzania are using print with some broadcasting support as their main teaching media. Access is important to plans for media use. In Bangladesh, adequate access to broadcasting time for the institution, and access by students to radio and television, constrain the choice of media (Harry, 1999).

In the 1990s, computer-mediated distance learning included an instructor delivering courses through the use of a computer network or the Internet. The explosive growth of the Internet has contributed to the increasing popularity of this type of learning and has brought with it a set of issues and problems heretofore unexplored in education. According to a U.S. Department of Education study, about 90 percent of all higher education institutions with enrollments of ten thousand or more offered distance education programs in the fall of 1995. Not all distance education programs include computer-mediated course offerings. They may, instead, include video conferencing and other means of distance learning or a combination thereof (Palloff & Pratt, 1999).

## Technology Distance Learning State of the Art

### Online Courses

Large corporations have known the efficiency and cost savings of distance learning. Today, smaller businesses are seeing the value of online learning. In 1999, corporations spent \$500 million on online learning, and are expected to spend \$7 billion

by 2002, according to Hall, lead researcher and CEO of brandon-hall.com, an e-learning information and advisory firm in Sunnyvale, Calif. Hall says small businesses are often overlooked (Tyler, 2001). Most of the services are designed for big companies.

However, some providers are starting to pay attention to smaller firms, which is good news because online learning can be especially beneficial to smaller organizations. The cost and convenience of online learning recently led the Greater Seattle Chamber of Commerce to create an online learning center for its 2,200 members, most of whom have fewer than 100 employees. Chamber education personnel saw a decline in attendance at their educational programs yet without a decline in pursuing learning opportunities. They found that e-learning met educational need at a more convenient time than instructor-led seminars. Proponents point out that online learning or e-learning can save significant money in travel costs, which can be especially important for small companies with far-flung offices. Instead of flying a dozen salespeople to a product seminar in Chicago, they can simply plug in their laptops from hotel rooms or homes around the country and download the information at their convenience (Tyler, 2001).

Today, most on-line courses are text-only courses (Bourne, *et al*, 1997). Online courses are basically people networks for anytime - anywhere learning. Online combines self-study with substantial, rapid, asynchronous interactivity with others. Online learners use computer and communications technologies to work with remote learning resources, including coaches and other learners, but without the requirement to be online at the same time. The most common online communication tool is the World Wide Web. By this definition, a web-based workshop that requires frequent online conferencing and collaboration with others is an online course. Text-based or computer-based training

courses that require learners to use email to discuss assignments with each other and with their teacher are also online courses. Online courses can include a proctored examination at a specified time and place, or occasional synchronous chat or lab sessions for near-campus learners, or an in-person introductory meeting. By this definition, distance education based primarily on a synchronous audio or video presentation or conference is not online. A videotaped course, mail-based correspondence course, or computer-based training are not online because these do not include substantial and rapid interactivity with others, even though the learner might mail in a paper or test and receive a reply days later (Bourne, *et al*, 1997).

### Text Online

Most online courses are text-only because of the large bandwidth required for video or photographs. Depending on the subject and amount of movement in a video, bandwidth between 500 – 650 kilobytes per second is needed for good visual quality (Rule, 1999). Most students taking courses online use home computers. Currently, the vast majority of home computers in the U.S., 76%, are connected to small bandwidth modems (PC World.Com, 2001). For these reasons, most online teachers save themselves and their students a lot of frustration by simply teaching text-only courses.

Another reason for the dominance of online courses is due to many vendors offering this format for free or at a low cost to schools. With this free version, the storage space is so small it precludes the inclusion of graphics or video. One of the most popular services is Blackboard which offers teachers an online course for free. However, this version offers only 5MB of storage (Blackboard, 2000). Such limitations preclude

presenting multimedia components such as video or high-resolution photos in an online course.

Lastly, text-only online courses are also due to some teachers believing that merely placing text on a website is teaching. Some instructors are posting their lecture notes online. Richard Hall, an associate professor of psychology at the University of Missouri at Rolla, says that most online courses are not much more than lecture notes on a web site. (Carnevale, 2000b).

However, there are exemplary exceptions. Similar to the traditional class lecture, little learning takes place when students do not interact with the instructor or active learning resources in an online course. A teacher who imparts the "closeness" of an intense face-to-face interaction in their online course greatly improves the richness of their course (Bourne, *et al*, 1997). Of course this increases the amount of time a teachers devote to each student, often more than what they would spend interacting in a traditional course. When students rate online courses, they look for some of the same elements found in traditional courses such as a knowledgeable professor who interacts with the students and features which create a sense of community in the course (Carnevale, 2000c).

Alley, Manager of instructional-technology projects at Montgomery College, Rockville, Maryland has just completed a survey of thousands of colleges and universities across the country, and interviewed faculty members who have used innovative techniques to make their online courses better. Alley has concluded that distance courses should not follow the lecture approach of a traditional course, or simply offer students online content to read. He says knowledge is not transmitted from teacher

to student, but is constructed and not something that is "handed to someone over a high-bandwidth cable". The study shows that some aspects of distance-education instruction what were considered novelties a few years ago are now thought of as essentials for a good course. These include regular interaction between instructors and students, a student-centered approach, and built-in opportunities for students to learn on their own. (Carnevale, 2000c).

Bull, at Oklahoma State University, College of Education, teaches in this manner. In his courses, Bull posts modules describing various elements and requirements of his course. Students are offered numerous online resources which assist them in compiling their assignments. Students then send assignments through email. Dr. Bull confirms receiving these, and in later emails evaluates them and offers feedback. Individual interaction between Bull and the student are key to the student's success. Due to his patience and tolerance, he consistently explains the concepts until the student grasps them (Bull, 2000).

However, many teachers are not as generous with their time with students. Instead they are simply posting content online assuming that this is teaching. Winn, Director of Human Interface Technology Lab Learning Center, University of Washington, warns that simply posting course notes online is not instruction. In order to teach online, Winn advises taking deliberate steps to support knowledge construction, provide a context for learning, and provide a learning community within the course. Without these, Winn believes such courses fail (Winn, 1998).

One way to address this need for community in the online course is to refer to Maslow's Hierarchy of Need. Once the physiological and safety needs are met, the student needs to feel loved and as though he belongs to a class or online course. If the teacher and fellow students are encouraging, the student will feel trust and friendship which enables quality communication. This is not to imply that *any* work is acceptable. When a student submits work that requires correction, the teacher should do it in a kind and encouraging way. In the collaborative setting, fellow students can do this as well (Bull, 1999).

Maslow also notes the student's need for self esteem. This need is met to a degree as the student feels safe, learns from mistakes in the class, and grows in understanding of the subject matter. If the understanding is significant, he may even help other students. This could be implemented by the teacher encouraging students to stress positive points of a fellow student's work, and the teacher addresses the student's errors in private. Even though these steps are taken, they will not *insure* that the self-esteem need is met but will provide a nurturing environment to encourage positive self-esteem (Bull, 1999). All of these functions can be implemented through threaded discussion, chat, email, and attachments.

One professor, who has seen both sides of such courses by taking them as a student as well as teaching online, also concluded that a sense of presence or awareness for others in the course is vital to its success. While not physically present, all participants should be committed to ongoing and high level interactivity. Course information and subject content must be carefully organized and all stakeholders need to contribute. This has to be established first in an online course if students are going to

fully benefit from the resources made available in the environment. Also essential is that the present moment in asynchronous environments always has to be felt even though stakeholders are accessing information or participating in activity at different times. Collectively, learners and professors have to help sustain a sense of presence by way of their participation in online activities (Dringus, 2001).

Though text may hinder some students, it does help some. Text is an equalizer which offers an opportunity to all students to contribute their thoughts. Text responses from students are mini-essays. They are much longer than most student comments in the traditional face-to-face class, are usually given more thought, and are spell-checked. However, it is not clear whether the students actually learn more with this method. (Carnevale, 2000a).

However, there are numerous problems with text. Online text communication requires in most of these courses a strong ability to be extremely articulate in written form. Students often ask questions that are vague, and an instructor responds in a way that he or she thinks is helpful. Often, if a student does not receive a satisfactory answer to his question, he will give up rather than ask again. (Carnevale, 2000a).

Much of human communication is inherently ambiguous but people can often adequately resolve key ambiguities when they are face-to-face. When the primary communication medium is written text, resolving ambiguities may be more difficult for many people (Hara, 2000). In one case-study at Indiana University, researchers found that the students' frustrations about receiving "prompt unambiguous feedback" continued throughout their course, and that such communication is much more difficult in text-based asynchronous courses than in face-to-face conditions. Part of the complexity

comes from trying to anticipate the level of detail and phrasing that will be sufficiently helpful to others. Students were often unsure what meta-communication would be appropriate in their online conversations. A teacher, to confirm understanding, may value email which represents the nodded head of a face-to-face group, or it may instead be dreaded by him as yet more of an email glut (Hara, 2000).

Text in an on-line course can be overwhelming according to a case study at Vanderbilt University. Researchers concluded that one course which was studied contained too much material. Students were not impressed by having encyclopedic knowledge at their fingertips. They simply wanted to know the information for which they would be held responsible (Bourne, *et al*, 1997).

### Visual Learning

As previously mentioned, this medium has been used via cable television for decades. With the advent of the Internet and consequently many intranet systems, instructional television continues to offer students a graphic method for learning. Since 1972, the University of Southern California Distance Education Network (DEN) has been just one example of an extensive instructional television network. It includes interactive one-way video and two-way audio broadcast systems which enable full-time professional engineers to take USC School of Engineering courses for graduate degree credit from the convenience of their company facilities. Regular campus classes and non-credit continuing education courses are transmitted from studio classrooms at the USC campus to remote classrooms at subscribing company locations from coast-to-coast. Courses are



delivered via microwave within the Los Angeles area and via satellite throughout the United States.

In addition, DEN is now delivering courses directly to the desktop via its webcasting capability. Instruction is highly interactive; students can ask questions and carry on discussions with the instructor by telephone. E-mail allows students to receive assistance from the instructor or teaching assistant outside of class hours. Class materials are transferred between distant locations via the web and/or fax (Lichvar, 2001).

Numerous studies indicate a much larger portion of the population are visual learners. In fact, some research indicates that online students prefer visual information. Robert P. Ouellette, director of technology-management programs at the University of Maryland - University College, has conducted studies about student experiences in online-education courses. From these studies he has concluded:

One of the things that is very clear to me is that the distance-education students tend to be very visual. The phrase "a picture is worth a thousand words" is very true. They prefer pictures much more than verbal communication. They understand graphics and pictures better than text. So when you're online, which is so very largely a textual format where people just put notes and words, it's very important to have a lot of graphics. (Ouellette, 2001. p. 4).

Video and other multimedia components are especially helpful in science and technology demonstrations. Through this medium students can more easily comprehend movement and three-dimensional objects (Carnevale, 2000b).

Additional studies indicate that many students learn better from videos. The goal is not only to present content, but to hold the interest of the student. This is especially important when one considers that the majority of students are visual learners. According

to a University of Michigan study, 69% of students are visual learners though most college professors predominately attempt to teach by lecturing.

The study continues by noting that the use of multimedia engages students actively in their learning and exposes students to the subject matter in exciting ways that traditional learning methods cannot. Using multimedia allows students to take an active role in the educational process, in that it frees them from being passive recipients of information (Montgomery, 1995).

### Subject Videos

Recent research conducted on behalf of major foundations interested in the use of documentaries in schools indicate that educators can capitalize on the educational power of documentaries and, if used carefully, can significantly enhance education. However, this can be achieved only with a critical recognition of what documentaries are and are not capable of providing. *Eyes on the Prize* documentary series is an example of social history at its best because it inspires students to further research, generates discussion, and offers a visceral truth to history that often seems lifeless and distant. Educators who take the documentary seriously will play an important role in the evolution of this teaching tool into educational technology. Such teaching is academically sound, pedagogically efficient and inspirational for students (Lavelle, 1992).

Subject videos are also highly recommended for teaching the history of the Labor Movement. Many of the working class have not had the time or special resources to post their stories in history. Good theatrical films based on historical events such as *The Molly McGuires* or more recently *Norma Rae* provide students with cross-disciplinary

approach to the subject matter (Glass, 1997). Another example concerns a documentary entitled *The Uprising of '34* which chronicles thousands of workers in a southern textile strike in 1934. The film combines excerpts from historical interviews with former workers and managers, still photographs, newsreel and other footage. The film was used to stimulate discussion in a social studies classroom. Myths were examined, falsehoods were exposed, and even misunderstandings were dissolved among the students (Helfand, 1997).

*The Uprising of '34*, dealt with cultural diversity by combining excerpts from dozens of oral history interviews with former workers and managers, and newsreel footage and letters to National Recovery Administration officials. It tells the story of the General Textile Strike of 1934 involving hundreds of thousands of Southern workers. The response to the film in southern cotton mill communities was overwhelmingly positive. The film addressed social issues in new ways, helped students become more reflective about their attitudes toward other people, especially those in other socio-economic groups. Most of all, it created constructive public dialogue on diversity issues which enabled diversity teaching (Childers, 1997).

Another use for a subject video is to examine a culturally sensitive issue of film stereotypes. This is what a 1980 analysis did concerning movies such as *Tarzan* or newsreels from the 1930's and 1940's. Unfortunately not only commercial, but "educational" films, portrayed stereotypical and derogatory images of Africans. These films were so effective that the stereotypes they produced have prevailed for decades. Though the result of such films was damaging, it should be noted that this is another example of how effective video is as a communication tool. Therefore, teachers have a

responsibility to screen videos for such derogatory images as well as other inaccuracies, just as they do with text or other teaching tools (Walker, 1993).

Subject videos have been so successful as teaching tools that the PBS Program NOVA hosts a web page for teachers nation-wide who have created lesson plans around Nova programs (NOVA, 2000).

Salvant, one of the teachers who participated in the 1996 WGBH Teaching with Technology Institute, commented on her use of subject video in her classes teaching science to bilingual students at Woodrow Wilson Middle School in Dorchester, Massachusetts:

I have used the computer with a videodisc player as a teaching tool. I have used the videodisc, *Secret of Life*, in my biology classes, and it has been very helpful. The quick access to images and clips on the videodisc makes it easy to incorporate them into lesson plans. Students have learned to use videodiscs for review or as part of a presentation. The use of computers as a teaching tool has opened up a new world for my students. The new curriculum frameworks ask for a more active participation of students in the learning process, and technology allows them to learn independently and find information on their own (WGBH, 2000a. p. 1).

PBS/WGBH-TV has built numerous telecourses around subject videos.

Telecourses deliver the content portion of the course but instead of a classroom lecture, one sees documentaries or instructional dramas developed by academic and media professionals who often spend two years or longer producing a single course or series. Course content, requirements, assignments, evaluation and exams are equivalent to those for courses taken on campus (WGBH, 2000b). Another program PBS/WGBH has established is *Writing with Video*. Over three years, WGBH collaborated with 17 teachers at six schools in the Northeast, encouraging them to explore uses of captioning

technology and documenting these uses and effects on learning with deaf, hard-of-hearing and learning-disabled students. A team of researchers at the National Technical Institute for the Deaf collaborated on designing classroom activities and evaluating benefits for students. In the program, students view a subject video and then add a caption to the video. A significant number of students improved skills and behaviors in the following areas:

- Organization, sequential presentation, and logical development of text.
- Detail and elaboration in writing.
- Clarity and precision, including selection of appropriate words.
- Vocabulary expansion and growth.
- Comprehension of content of the video.
- Retention of subject-area content (WGBH, 2000c).

### Video Online

According to Moore's Law, computer power will double every 18 months and increases fourfold every three years (Provenzo, 1998). This same law is applicable to bandwidth technology. Within the near future, most Americans will be able to access video on their home computer due to expanded bandwidth, regardless of their location (*What is StarBand*, 2000). Until recently, cable modems with bandwidth averaging 2mbps have been available in most US urban areas, while rural areas have had only phone line modems with 28-128 kbps. Several companies are currently offering two-way Internet service through satellite reception. Corporations such as StarBand Communications Inc., or DirectDuo currently provide residential customers with 400-500

kbps download speed and upload at 150 kbps. It is available virtually anywhere in the US (*What is StarBand*, 2000), (DirectDuo, 2000).

### Performance Data

Academic performance data for online courses is rare. Virtually no detailed quantitative evaluations have been conducted that collect hard data that include performance evaluations. Many college courses cannot be easily split into experimental and control groups. Further, many faculty members are not eager to engage in experimental situations in which a control group can be compared with an experimental group (Bourne, 1997). The standard course assessments for on-line classes tend to be numerical surveys. They do not elicit vivid accounts of where problems arise and what might be done about them. They do not allow the students to give a general description of problems. Often a student giving a number on a five-point scale does not give a clear picture of the student's frustrations (Carnevale, 2000a). For these reasons, it is important to collect performance data as well as qualitative responses from students.

## CHAPTER III

### METHODOLOGY

#### Subjects and Sampling

In spring of 2001, approximately one hundred subjects from six sections of an education technology course in a southwestern United States university participated in a two session experimental study to compare the effectiveness of subject video and text as learning tools. Three of the sections watched the subject video as a group. The other three sections individually read the online transcript of the subject video. A coin was tossed to determine which group would receive which treatment. Instructional treatment was an independent variable in this study. A second independent variable was learning strategy, which was determined by the ATLAS instrument.

#### Instrumentation and Treatment Materials

The aptitude treatment interaction model (ATI) was used to determine any interaction between learning strategy and treatment. Determining only which treatment is more effective, text or video, gives the researcher incomplete information. Therefore, determining one treatment to be more effective than another with what types of learners is more specific and beneficial (Cronbach and Snow, 1977).

A pre-test/post-test research design was used. The pre- and post-tests were identical. The author of these tests was the researcher (see Appendix). These tests were

used to determine what the subjects already knew about the issues as compared to what they learned from the treatment. There were twenty questions on the pre-test and the post-test. From these, straight difference scores were calculated for the dependent variable.

A second independent variable in this study was the student's learning strategy. The instrument used for this was *Assessing Learning Strategies for Adults* - ATLAS. The author of ATLAS is Dr. Gary Conti, Professor of Adult Education at Oklahoma State University. ATLAS has been developed to quickly identify the learning strategy group to which the respondent belongs. The validation process for ATLAS involved the use of past learning strategy studies and multivariate statistical procedures. The concept of lifelong learning suggests that adults need to acquire a variety of process skills to enable them to address their constantly changing learning needs. This approach to learning has stimulated interest in the learning strategies that an individual elects to use in order to accomplish specific learning tasks (Conti & Fellenz, 1991). In the ATLAS instrument, each of five areas consists of three specific learning strategies: metacognition consisting of planning, monitoring, and adjusting; metamotivation consisting of attention, reward/enjoyment, and confidence; memory consisting of organization, use of external aids, and memory application; critical thinking consisting of testing assumptions, generating alternatives, and conditional acceptance; and resource management consisting of identification of resources, critical use of resources, and use of human resources.

ATLAS utilizes a flow-chart design (see appendix). Sentence stems, which are in the top box on the page, lead to options in other boxes which complete the stem. Connecting arrows direct the respondent to the options. Each option leads the respondent



to another box which either instructs the respondent to proceed to another question or which provides information about the respondent's correct group placement. Five groups constitute the entire packet for the instrument. Depending upon reading level, ATLAS can be completed in approximately one to two minutes. ATLAS was purposely designed to be easy to use and quick to score (Conti, 2000).

Learning strategies are behaviors developed by an individual through experience with learning. The learner elects to use a specific strategy in order to accomplish a specific learning task. Contributing factors that govern learning include: the student's past experiences, whether content is meaningful to the student, willingness to become involved with the subject matter, and what learning techniques the student possesses. These techniques or strategies affect the student's self-direction and individual development (Conti & Kolody, 1999). However, a student's learning strategy is not a life-long identity. A learner can move from one strategy to another over time depending on the type of learning involved (Conti, 2001).

During the summer of 2001, follow-up interviews were conducted with the highest and lowest performers in each of the six categories for a total of twelve interviews. The following questions were asked of all of those subjects:

- What problems did you have with the presentation (text or video)?
- What frustrated you?
- Can you give me any advice on ways to make the presentation (text or video) more helpful for learning?
- Was there anything you enjoyed about the presentation?

- Suppose you had the choice of two assignments for a class. One choice is to read a chapter online, and the other choice is to view an expert panel discussion about the subject on video. Which one would you choose? Why?

In addition to the above questions, the following were asked of the various participants according to their learning strategy:

#### Navigators

- Did you take notes during the presentation?
- Did you have enough information beforehand to know what would be expected of you?

#### Problem Solvers

- If the presentation had included that you search the Internet for information, would you have enjoyed it more?
- When taking a test, do you prefer multiple-choice questions or another type of question?

#### Engagers

- Did you think the subject matter gave you any information to benefit you personally?

### Design Procedures

Since the groups were formed from enrollees in existing classes, the study could be classified as quasi-experimental. The researcher worked with intact groups, course enrollees from six sections of the same course. In order to randomize the groups, a coin was tossed to determine which sections would receive which treatment. The subjects were primarily elementary or secondary education majors enrolled in an Education Technology course.

Once the subjects were seated at their computers, they were given the Participant Consent Form which the researcher read to them. Then they were asked if they could participate. Those who are able to participate signed the form, turned it in, and gave it to the researcher. Each participant was given a copy of the form. Then the subjects received instructions from the researcher reading a script that included a reminder that the subjects' participation was completely voluntary, and that their results or participation would have no bearing on their grade or credit earned in their course. Also, subjects were reminded that that the final results would be completely anonymous and untraceable to them.

Subjects were then asked to take the ATLAS test online on a secure web site to determine their preferred learning strategy. This process took approximately ten minutes. After the results of ATLAS were collected, subjects were asked to take the Pre-test online, also on a secure website. This process took approximately twenty minutes. Session One concluded with instructions to the subjects asking them not to pursue the answers to the pre-test, or discuss the test among themselves. The subjects were thanked for their participation and that Session Two would be conducted in the next class.

In Session Two, subjects were reminded of the instructions concerning anonymity, security, and that their participation was completely voluntary and would not affect their grade or credit for their class. Session Two included the respective treatments of text and the subject video. Time was called after thirty minutes, then subjects were asked to log onto another secure web site in order to take the post-test. The post-test took approximately fifteen minutes.

## CHAPTER IV

### RESULTS

#### Statistical Analysis

The standard deviations ranged from 2.12 to 3.47. A total of seventy-nine subjects participated in the experiment. Table I below shows the group means by learning strategy types and instructional treatments. Though there are higher scores for video across all learning strategies, and Engagers score the highest of all groups, neither of these main effects was statistically significant.

TABLE I

COMPARISON OF GROUP INTERACTION MEANS BY LEARNING STRATEGY TYPES AND INSTRUCTIONAL TREATMENTS

Learning Strategy	Nav. Mean	Stand. Dev.	Engager Mean	Stand. Dev.	Problem Solver Mean	Stand. Dev.
Text Presentation	6.10	2.13	6.75	3.47	5.40	3.10
Video Presentation	7.50	3.12	8.00	2.73	6.25	2.12

Since sample size was too small to determine normality for Text Navigators, Text Problem Solvers, Video Navigators, or Video Problem Solvers, a t-test was conducted only for Video Engagers and Text Engagers.

TABLE II

## T-TEST

Source of Var.	N	Mean	Std. Dev.	Std. Error Mean
Text Engagers	24	6.75	3.46724	.70775
Video Engagers	19	8.00	2.72845	.62595

	t	df	Sig. (2-tailed)	Mean Difference
Equal variances assumed	-1.286	41	.206	-1.25
Equal variances not assumed	-1.323	41	.193	-1.25

The Friedman non-parametric test was also conducted for all learning strategy groups with both treatments.

TABLE III

## FRIEDMAN TEST

Number	Chi-Square	df	Asymp. Significance	Chi-Square Critical (.05)
8	4.647	5	.460	11.0705

Since sample size was too small to determine normality for the Navigator and Problem Solver groups, cells were collapsed to compare all video groups to all text groups.

TABLE IV

## ONE-WAY ANOVA FOR VIDEO VS. TEXT

Source of Variation	SS	df	MS	F	P-value	F crit (.05)
Between Groups	34.3	1	34.3	3.943291	0.051092	3.981896
Within Groups	591.486	68	8.698319			
Total	625.786	69				

Although Dr. Conti's research indicated that each learning strategy is about one third of each total group studied, this was not the case for this study. Instead, Engagers made-up at least 54% of the subjects (n=43), while Navigators (n=18) and Problems Solvers (n=18) were only 22.7 and 22.8% respectively. A chi-square test of distribution was used to compare the observed and expected distribution, which showed chi-square to be 15.823 with 2 degrees of freedom. Since this chi-square observed exceeds chi-square critical 13.8155 ( $\alpha=.001$ ,  $df=2$ ), the null hypothesis was rejected, with the conclusion that the observed frequency distribution is different than the expected distribution (Shavelson, 1995). Since the distribution was significantly different, the result was that sample size was too small to determine normality for some cells (Navigators and Problem Solvers).

### Follow-up Interviews

#### Treatment Preferred

The highest and lowest scorers in each of the six groups were interviewed for a total of twelve interviews. Regardless of which treatment they received, 10 out of 12 subjects liked the treatment they received. Five who received video prefer video, and five who received online text prefer text. The exceptions were: the low scoring Text Problem Solver who preferred video because the text was time consuming and difficult to read; and the low scoring Video Navigator who preferred text because it "sticks in my mind better. With video I get distracted."

## Format

When asked if there was anything about the presentation which they enjoyed, six of the video subjects and one text subject noted that they particularly enjoyed the expert panel discussion format. They enjoyed observing differing views in a discussion format instead of a lecture. Since many Engagers prefer to learn from people rather than books, video may be more appealing to them. One Engager noted that he "enjoyed the panel discussion on video because it was more conversational". Another Engager said she preferred video to text "because it takes more time to read". One Problem Solver noted she "enjoyed the discussion video because I'm a visual person and I like to see demonstrations." Another Problem Solver said "video is easier for me to relate to, especially with the conversational format".

Since Navigators like to know the basic premise and major topics first before delving into an assignment, this was apparent from their comments. One Navigator said she liked the format but said it would have been better "with a list of topics before and after the show". Another Navigator also said the piece would have been better with a "recap toward the end".

## Engagers

This group was split evenly on whether they preferred text or video. Engagers are primarily motivated by enjoyment, and personal benefit. In this experiment, the Engagers:

- Enjoyed learning what Learning Strategy they use.
- The Education Technology information was beneficial to their Education Major.

- Enjoyed the conversational format.

Comments included: "I liked the discussion on video instead of a lecture." "Video is more conversational...I enjoyed it." "Online learning now seems much more appealing since I know the teacher has to be involved." "I enjoyed finding out what learning strategy I use." These are typical comments from Engagers who use the words; enjoyed, liked, appealing, etc.

### Navigators

This group preferred text to video three to one. It was mentioned that they prefer to skim through text at their own pace. Navigators like to chart their path for learning. They like to feel in control of their learning resources. They also like to have the "big picture" and to know what is expected of them. In spite of this, none of the subjects took notes during the experiment. The best advice on how to improve the treatment came from this group:

- Instead of scrolling down through all the text, it may have been easier to link to the next page.
- Instead of having black text on white background, use a colored background which is easier on the eyes.
- Two Navigators said the material could have been improved by recapping major points at the conclusion.

Typical of Navigators, they were generous with comments relating to efficiency and effectiveness. Other comments included: "I wasn't sure what was expected...I needed a focus on the topics, maybe give a list of topics." "I think it could be improved by taking



two minutes to go over the main points at the end." "I like text better because I can go at my own speed." "I prefer to read instead of watching a video. When I read, I'm able to skim, but when I watch video, my mind wanders."

### Problem Solvers

Three out of four in this group said they prefer video to text because they consider themselves to be visual learners, to see demonstrations, and find it easier to relate to videos. This group often enjoys seeking out information and has trouble with multiple-choice tests because they perceive several sides to a questions.

- 3 out of 4 said they prefer essay questions to multiple-choice questions because it often seems there is more than one correct answer on multiple-choice.
- Only one of four thought an Internet search would have enhanced the information offered in the project.

Comments included: "I like to see things demonstrated." "It may have helped to research the topic on the Net." "The text was time consuming and hard to read." "I don't like multiple choice because many times it seems there can be two answers."

Other comments included:

- A Text Engager said captions on the text would help comprehension.
- A Text Problem Solver said using different colors on the text for different speakers would help comprehension.
- A Video Engager suggested using a different room instead of the computer lab when viewing the video. With this change, students would be able to give full attention to the video which is directly in front of them, instead of sitting next to

their computer monitors which enticed them to check their e-mail, an activity apparently many of the Engager subjects enjoy.

## CHAPTER V

### CONCLUSIONS

This study was done to determine which types of students perform better with text, and which perform better with video. The students were categorized according to their learning strategies as defined by ATLAS including *Navigator*, *Problem Solver*, and *Engager*. The Aptitude Treatment Interaction (ATI) model was used because it compares the main effects of the instructional treatment (video or text) with the student aptitude of learning strategies (ATLAS), with an examination of any interaction between these two variables. However, the ATI model requires larger samples than those gathered in this study. This may have contributed to the lack of significance in the study. Sample error and testing error may have caused the no significance result. Hopefully, this research will be helpful as a preliminary investigation for further research of such instructional treatments and learning strategies.

Other components may have also contributed to the lack of significance in this study. When comparing two media, the researcher attempts to make each treatment equally appealing to the subjects. However, this task is particularly difficult because video is very different from text. Attempting to place these treatments in an equal comparison will result often with one treatment more advantageous to subjects than the other. For instance, does the researcher give an advantage to video by using text captions in it? Does he/she give an advantage to online text by including hyperlinks to other text pages? In these media, there are numerous components to consider. Inherent in these differences are the preferences subjects have for their preferred treatment.

Online text in its best presentation would probably resemble a chapter format in a book including captions, colored texts, sub-captions, bullets, etc. The online element of this may also allow hyperlinks. Perhaps the text/transcript was not presented in a manner as user-friendly as the video was in this study.

Another difference in these treatments was individual control. The subjects using transcript text had active control over the transcript to slow down, skim through, back track, etc. However, the subjects viewing the video were passive - without control.

The seating arrangements for the two sets of subjects may have been advantageous for the text group. This group was seated at their individual computers while the group viewing the video was also seated behind individual computers. Unfortunately, several of the video subjects opted to turn their attention to their computers rather than view the video. Of course this may have affected their performance scores.

Lastly, the difference in distribution of learning strategies found in this study was significantly different than that found in other ATLAS studies which affected sample size in the various ATLAS categories. Rather than having a sufficient number in the Problem Solver and Navigator categories, a significantly higher number of Engagers surfaced. More recent research has revealed that the different groups of learners identified by the ATLAS instrument are inclined to gravitate toward the types of organizations or learning environments that best support their strengths. For example, in another study which examined participants on the Internet, more people from the ATLAS group called Problem Solvers surfaced, 45.2%. Apparently the nature of the Web fit well with their tendency to explore solutions (Ghost Bear, 2001). However in this study, the subjects

were predominately Education majors which may have a tendency toward the Engager characteristics.

Two other studies found a higher percentage of Engagers in Adult Basic Education classes and community colleges (James, 2000; Turman, 2001). These distributions were attributed to Engagers participating in environments where they believed they could be successful and maintain a positive self-image. Thus, different organizations or learning environments have a propensity to attract more learners from certain ATLAS groups based upon the image of the organization and elements in it. So far, no studies have found a majority of Navigators (Ghost Bear, 2001).

A significant difference in distribution may also be due to the fact that a majority of the subjects were education majors. The nature of education is to encourage and enhance the teacher-student relationship. Engagers enjoy learning through relationships and working with people. Since these traits are often found in teachers, education majors may tend to be Engagers. In this study, 54% were Engagers, as opposed to only 33.3% in the other categories. Perhaps a cross section of majors would yield a distribution aligned more closely to what was originally expected.

Although the comparison of video to text for this experiment was not conclusive, the interviews indicated several points concerning the relationship between Learning Strategy and video verses text. In this study, each group liked the treatment they received. How can this be explained? Many students have viewed locally produced amateur videos for classes which are basically “point and shoot” videos. Often the product is a “talking head” presenting a lecture. When given a choice to view this type of video or read the same material in text, most students would gladly choose the text. At

least with text, students can skim through redundant portions and read at their own pace. But given a choice between viewing a lively discussion among knowledgeable authorities in a professionally produced video, and the same material on text, students may prefer the video. However, this research effort produced no conclusive evidence to support such a premise.

### Recommendations

One way to eliminate the inherent differences in the two treatments would be to offer both treatments to all subjects with comparable but different subject matter. Also, when the video is viewed, it should not be done in a computer lab where computers are in front of the students, but in a facility which allows the students to sit directly in front of the video screen. This is also strongly encouraged to teachers who teach with videos.

Concerning individual control, until video can be properly presented online subjects will be limited to viewing video without control and reading text with control. Therefore, Navigators may tend to prefer the online text because of the control they have with it. However, when comparing online video to online text this may become a moot point.

There was a significant difference in distribution in this study compared to previous studies. This may be due to the fact that a majority of the subjects were Education majors. A cross-section of majors may better yield a distribution more closely aligned with that inferred by ATLAS to be representative of the general public.

Concerning text for online curriculum, and for follow-up research, some points should be noted:

- The text could be in the form of an edited chapter with captions and bold portions accenting focal areas.
- Instead of scrolling down through long text, *link* to the next page or to another site. After a few pages, scrolling becomes tiresome.
- Instead of having black text on white background, use a colored background such as parchment or beige which is easier on the eyes.
- Recap major points at the conclusion.
- Use captions for each major topic.
- Use different colors for various speakers or points.

Finally, some points to consider from this research:

- Engagers like relationships with teachers and other students. They prefer to be enticed and nurtured.
- Navigators want the “big picture”, access to the necessary information, and a recap of major points. They also prefer text to video perhaps because they can manipulate the online text easier than videotape.
- Problem Solvers prefer essay tests to multiple-choice tests. In light of this, it would probably be wise to offer students a choice of test questions.

It should be reiterated that this study was not conducted to propose the exclusive use of text or video, but to examine the effectiveness of each. Teachers should consider these media, as well as numerous others, as they formulate their instructional design. Much of the effectiveness of these information delivery formats depends on the learning strategy and learning styles of students. The effectiveness in a comparison study also depends on

the design of the experiment so each treatment is as accommodating and attractive as another. More research is needed in this area. Hopefully this effort will benefit that research.

Technology-based distance learning continues to evolve because it is often driven by teachers who are not afraid of technology, but embrace it. These are the teachers of tomorrow. They continually strive to reach out, by whatever means are possible, to students anywhere in the world. In only 45 years we have seen technology distance learning progress from radio teaching in Australia, to the Open University with audio, video, and computer-based learning, and now to online courses from around the world. Tomorrow we may see seamless video online at the click of a mouse. No longer will online teachers be limited to text courses with only still graphics. They may, in fact, have the technological capability to teach with text and illustrate with video.



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*(The following is the transcription which was presented to the subjects online).*

Panel Transcription  
Effective Internet Education  
12/29/2000

*The following is the transcript of a panel discussion moderated by OSU graduate student Paulette Jones. The topic is Effective Internet Education.*

**PJ:** Internet education is on the cutting edge of today's educational system but there are some vital issues which should be examined. Joining us today for this presentation are Dr. Bruce Petty, Associate Professor of Educational Technology at Oklahoma State University, Dr. Lynna Ausburn, the Assistant Professor of Occupational Education Studies at OSU, Dr. Kay Bull, Professor of Educational Psychology at OSU, and Rusty Muns, President of the Oklahoma Distance Learning Association and the Coordinator of Electronic Media Development at the Oklahoma Department of Career and Technology Education.

**Muns:** Great.

**PJ:** Did I get that correct? You guys changed your name so I wanted to make sure.

**Muns:** Exactly correct...Now that you've learned it we'll have to change it again.

**PJ:** Oh no. So this is quite of group of distinguished folks we have together with us today...probably some of the best computer folks in education in the state of Oklahoma. So I'm very honored to have you all.

I think one of the biggest questions people have is does Internet education work compared to traditional education...I know Dr. Bull you've done a lot of studies on that...

**Bull:** Well, I think it works wonderfully, you see what you do with Internet education is you get everybody to talk...now we're talking Internet education where we're doing Internet and not video we're talking asynchronous kinds of education and what I find is that I get a whole set of voices talking to me...if I ran a classroom discussion I would get half the class talking and the other half sitting on their hands...on the Internet everybody has to talk. So that's a great improvement over traditional classrooms. There are also some things you can do with video in terms of showing things that are very small and very large and things that take a long time where you can shorten the time span...those kinds of things are very good in an Internet setting.

**PJ:** So they have to speak if they're online and you can't see them...so you'll know that they're actually there?

**Bull:** Right, I have a requirement that everybody has to speak a certain number of times every week and that they have to not only respond to the questions that I pose but they have to respond to the questions their peers pose so it's a more collaborative setting.

**Petty:** When you say 'speak', they're speaking in text?

**Bull:** Yes they're speaking in text...yes it's an asynchronous process.

**Ausburn:** And doesn't that remind you of that wonderful cartoon where two dogs are sitting at the keyboard and one 'says' "you know, the great thing about the Internet is that nobody knows you're a dog!" (laughter).

**PJ:** There are several studies that have been done saying there is no significant difference between the effectiveness of Internet Education and traditional. And I know the pedagogy, the most successful pedagogy in traditional is face-to-face, small group...can that be kind of simulated over the Internet?

**Bull:** No and it shouldn't be...what we would really like to see is something different in the Internet. You know if all we're going to do is replicate the traditional classroom with a layer of electronics over the top, we just make it a very expensive process for what we can do very well in the classroom. You don't want the teacher to just be able to teach. What you want the teacher to be able to do on the Internet is to do something that can't be done in the classroom. So what I would say is that you have to do something very different than the traditional classroom.

**PJ:** And that would be...?

**Bull:** Well, asynchronous...7 by 24, interaction using a threaded database, a variety of other methods using listserv, e-mail, things like that.

**Ausburn:** I think we have to look to at the significance of non-significance. The fact that is some studies there is no significant difference between distance learning and face-to-face...I don't think that is troubling at all. We've been through this in instructional technology for a long time...sometimes the fact that I can say "Look, I can reach these people that I could not reach any way and get no significant difference and learning is a very good thing.

**Petty:** Also, no significant difference kind of depends on what you're measuring...if it's a fact based recall, written exam you're using as your measure, then no significant difference can be either way...it can be terrible or it can be wonderful.

**Ausburn:** But just the fact that there can be no significant difference in learning is not necessarily negative.

**Muns:** My recollection from graduate school is that all the media comparisons had always the result...no significant difference.

**Ausburn:** And there's nothing wrong with that.

**Muns:** No it's not necessarily bad but it's also meaningless to say there's no significant difference...I think the real key or the key indicator of success which is essential for success is who the learner is because I think you have to have a motivated learner for this to work. You can't just put it out there and hope they'll pick it up.

**Petty:** Probably there in lies the great keys to distance education...a motivated learner who, most of the time, not all of the time, but most of the time, wants to do this and can't any other way...or it makes it most inconvenient any other way.

**Ausburn:** To me the most important question is not, does it work, but for what and for whom does it work.

**PJ:** That brings me up to my next question; there are so many different components, elements of Internet education. We have text; we have threaded discussion, audio, video, links, graphics...and it can all be same time synchronous, or at your convenience asynchronous. So when you look at those elements, and there are other aspects of this too obviously, but what does it take to build a successful or at least an effective Internet course?

**Bull:** I think each of us will give you a different list of things depending on what we do. What I do is asynchronous online. What do you do?

**Ausburn:** Sometimes I do asynchronous online, and sometimes I do other things. Sometimes I do synchronous online and sometimes I'm using two way video conferencing in the classroom we have here...so yeah with a lot of different elements. You need to look at it a lot of different ways, and the thing that makes one type successful may not be the thing that makes another type successful.

**PJ:** So a lot of this really depends on age, background, motivation, grade level...  
Dr. Petty, you're frowning.

**Petty:** Oh...it's alright. I frown a lot. There are a lot of wonderful things about distance education...the possibilities of the Internet and the electronics we currently have and what contemporary society will allow us to do. Nothing's perfect, you win some and you lose some almost every time...it seems to me being an old cynic.

**Bull:** What I find is that I develop cohorts within classes and then those cohorts move from class to class together. I will have people who start out in an advance class and they back-up to take other classes online because they like that format and what happens is if they've been in the business for a while they start organizing new cohorts and so they get the class list serve together. Now I don't participate on the class listserv because I because I want the students to talk without me looking over their shoulder. So they organize the class listserv. They organize parties where they get together. Now it's really hard for my student in Nigeria to come. (Group laughs).

But for most students they get together for parties. I think they are closer than they would be in most traditional lecture class. Now that's not true about discussion classes, but in a traditional lecture class they're not going to be as close, they're not going to know as much about their peers, as they could in an Internet class.

**Petty:** My remarks have to be hedged by the fact that I don't teach lecture courses, never have.

**PJ:** Well I think if I hear you all correctly, what I hear you saying is the human element of getting to know one person to another, whether it's student to student, or student to instructor or teacher, this is something the research bears-out...the feedback is so important.

**Ausburn:** It does Paulette...the Australians have a wonderful term...however you do it...whatever technology and tricks you use...whatever instructional methods you use, you have to overcome what the Aussies call the 'tyranny of distance'. There's an isolation if you don't have any option for face-to-face or get-together meetings...somehow the instructor has to do something to get students to overcome that feeling of being alone and isolated and become part of a group...

**Petty:** And that can be done...

**Ausburn:** It can be done...it's better is you have some sort of live contact - monthly, or bi-monthly or however you can get it, but it can be done without it if the instructor is very good at the techniques to make that possible but overcoming that isolation is a critical key no matter what technology you use at distance...that's the stinger that has to work.

**Muns:** Lynna's talking about the tyranny of distance and absolutely using technology to overcome the tyranny of distance is one of the main things that distance learning is all about but now we're hearing the terminology of 'distributive learning' rather than distance learning where the whole point of that in my mind is that distance isn't really the factor...it's like...I don't want to be there when you're there...I want to take it on my own schedule.



**Muns:** I want to take the whole thing next week, or I want to spread it out over five years. I want to do it on my time...and I want to just do it...I want to do it in the middle of the night...doesn't matter...and that's why I think web-based is so appealing, more so than interactive tv which is I'm more involved in. The web-based takes away not only the 'tyranny of distance' but also the tyranny of having to be at a particular place at a particular time and that's a huge advantage...

**Ausburn:** That's a great point...you have that different time, different place model.

**Petty:** But if you want to use video clips or things like that, you can still do that in that type of environment...

**PJ:** Yes, what kind of bandwidth does it require to have video whether it be video of someone speaking such as this of what we're doing today...how much bandwidth do you need:

**Muns:** Depends on what you consider ok...and maybe you've done this in your classes if you don't mind have a little window up there with the talking head or whatever it is, you can do that...there may be some question about the value of the talking head.

**PJ:** Before we leave the components of Internet education, I want you all to address the issue of class size, because when we talk about the student-to-student collaboration as well as the feedback between teacher to student, class size is a real issue. So what is the ideal class size?

**Ausburn:** Well I can tell you right now in my distance ed class, I have 25 and I'm busy...I'm real busy. There's a very common myth "Oh, you've got all your stuff stuck online, and you can have 500 students..."

**Petty:** That's an administrator talking...that's a department head and a dean...

**Ausburn:** Teaching at a distance...the operational word here is teaching. It's not just stickin' stuff online and saying I've 500 students and they're out there on their own doing whatever it is they do.

**Petty:** That's a real danger.

**Ausburn:** It is very much a danger...

**Petty:** Administrators, and I've been one of those...administrators in today's environment feel the need to do things like that. We'll put you online, you've got 50-60 students, I can count all of those, I get student credit hour production, it's only costing me your salary again...I invest a little money in some hardware and software and I'm in business...and from their perspective that's exactly right.

**Bull:** Well...if you don't want interaction with the students...I can set up a class for ten thousand...(group laughs) it's either broadcast...or it's paper or it's paper online...we make it a correspondence course, and they do all of the responding on machine scorable sheets and I never come into contact with the student and you could run as many students as you want...I would not take that course.

**PJ:** That sounds like independent study.

**Bull:** It is.

**Ausburn:** Exactly...and when you look at the interaction that you have with your students...when you get a cry for help...they need help now not in three days or two weeks...they need help now...

**PJ:** And I love your philosophy on that...

**Ausburn:** Well...and I am busier with 25 at a distance than I am with twice that many...

**Petty:** Absolutely.

**PJ:** Should the course load for Internet course teachers...should they be teaching less courses as opposed to a traditional teacher?

**Petty:** They should be but they won't because...

**Ausburn:** Because the administrators don't get it...

**Petty:** Well they don't get it and well they have all that politics they have to deal with...I don't like it either but I did it for a couple of years so I'm not as likely to want to go out and hang them as I used to (group laughs), but I will go.

**Ausburn:** Should you have a lighter number of courses if you're teaching at distance...I think you absolutely should. Prep time, the personal contact time with students because of that tyranny of distance and because of distributing the learning in a way that's interactive and meaningful.

**Petty:** I don't think there's a way anywhere in the process either from the beginning where you have all this preparation you have to do that's rather enormous actually...even when you get to a place like Dr. Bull who's infamous (group laughs) or famous for doing it and does it really well...there is no place where you can put it on autopilot ...there is no place to do that.

So whether you've just started it or you've been doing it for quite sometime and are really good at it...it's still the same amount of work.

**Bull:** Let me follow up on that...last spring I had a course that had 24 students and I knew I was doing a lot of responding...so I printed off the threaded discussion database because I wanted to see how much stuff we had there...it was 1800 single-spaced pages from one course.

**Muns:** Being the only person here who is not a faculty member...does a teaching assistant come into the equation? If you have more than 25 in your online course whether it's Internet or tv, but you have a teaching assistant who will help you grade those papers or help you to respond to those frequently asked questions which most of them probably are...does that balance things out a little bit or do you still want to stick with this?

**Bull:** I've never had a course where I could put a teaching assistant in charge of responding to students. All of my courses are graduate level and I could probably do it with undergraduate courses but at the graduate level, kids asking questions where I have to go and figure out the answers...I can't ask a student to do it because a student wouldn't know.

**Ausburn:** I think it can help...a TA can help a lot if there are mechanical things to be taken care of...information to be gotten online, links to be put online, responses to be counted, mechanical things, but often what I find is...what a student's needs when they contact me is, they need to talk to me because they need either information that I might not have which I'll have to go help them find or they need a validation...they need a 'you're ok', and they need to hear that from me.

**PJ:** Sure. Concerning the preparation for an Internet course...it can be extremely extensive, so should we look at compensation Internet teachers being higher than traditional teachers? Because... now we're getting into designers and producers rather than what we would call teachers in the traditional sense.

**Bull:** I don't think you can go at it that way...I think what you need to do is reduced load...give them the time to do it, I don't think you'll get the administration to pay additional funds and I don't think the faculty want additional pay for it because if you get additional pay for it, they buy your product, and then they end up owning the copyright for something you've put your life into.

**PJ:** Now the role of the Internet teacher would you say is different from the traditional teacher? We've heard so much about "the sage on stage" lecturing to a hundred people...

**Petty:** No I think the Internet teacher is far more involved with their students than the sage on stage.

**PJ:** So it's more like the guide on the side?

**Petty:** Yeah.

**Bull:** Unless they're straight video talking head type which is just the regular classroom with an expensive electronic layer.

**Petty:** Sages on stage usually try to get off the stage real fast.

**Ausburn:** Somebody might ask them a question (group laughs).

**PJ:** Rusty, where is the vo-tech in this situation? I'm working on the name change here but you're department...where are they in this?

**Muns:** My area at the current time is pretty much more involved in interactive video than we are that...we are exploring online training in the curriculum division and have done some work in that area that I'm not personally involved in. But one of the things I'm excited about for the future is a concept we have referred to as 'the virtual technology center' more currently we're calling it the 'Career Tech Network' which makes my life better but the idea is there is a presence out there on the Web that is technology center where a student can go and enroll in and take a course online but it's not a totally online course. There are still components of it where you come to the technology center and do the hands on thing or do the assessment or take the test...

**PJ:** How often do they come to the center?

**Muns:** Well we don't know yet, it's still evolving...I think it's really going to depend on the course. Some courses are probably going to require lots of hands on...others, maybe not. But I think the important distinction about the model is there would be online interactive Internet kinds of components to it, which is what we don't have right now. There's going to be the interactive tv thing which we're pretty good at...we've been doing that for a long time, and there's going to be the come to school and let me touch you aspect.

And we feel that that combination of elements in terms of delivery instruction is going to be real successful.

**Ausburn:** I agree with that model. You need a combination of things including if at all possible, live interaction...live face-to-face people. I think the point that Rusty made which is really really important is...the question is not "should my course go online" but "what parts of my course and how should they be presented effectively and what parts are going to be very difficult?"

**Muns:** And we recognize that and we want to make the learning experience an effective one for all students.

**PJ:** Let me switch gears for just a minute here...we've talked about vocational training...we've talked about higher-ed. Let's look at k through 12. And I know Dr. Petty, that's his specialized area...(group laughs).

**Petty:** Not necessarily.

**PJ:** But you know we're seeing a lot of studies on high school students taking the Internet courses but when they're presented as an 'add on' to an existing curriculum...because there is a misconception out there that Internet courses are easier, less challenging than traditional (group laughs).

Ausburn: That is a myth.

**PJ:** Some high school counselors are encouraging their students to add on an Internet course.

**Petty:** That's like saying take home exams are easy...don't ever do that. No, this kind of thing can bring stuff to k through 12. The simple answer is that it can bring things to individual school districts which are difficult to provide...German by satellite here at Oklahoma State is probably a prime example. Foreign language education being broadcast all over the place to schools that simply can not yet have foreign language teachers to come to their schools. Now you can do that with all kinds of things that are above and beyond what someone might consider to be the regular curriculum in a given "average" high school if there is such a thing.

**PJ:** But what about the lower grades...I know it will work with a lot of facilitation at the high school level.

**Petty:** It depends on what you're calling distance ed...up until now we've been talking about course work

**PJ:** I'm talking about coursework...is it realistic to even consider something like that at the middle school or elementary grade or are we looking at it the Internet more as a resource in the classroom?

**Petty:** Well I don't know of very many third graders taking courses (online). This kind of technology can take third graders outside their box. Wherever you are...not just in Oklahoma, it can be in Oregon or wherever for all practical purposes, you could say you live inside a box, and this can take you out of it.

**PJ:** For instance web tours, research...

**Petty:** Sure, we can take third graders down the hall and take them through the great museums of the world and teachers can do that in their classrooms. I have a student who is a teacher at a high school here in Oklahoma and he has a program set up where he takes high school kids to Europe every other year. And in the off years, European students come here and spend a month or whatever. The website that he's got for that is really very nice I think...for everyone, students and everybody else including parents of the students who are going to go this year.

**PJ:** I hear a lot of stories about Internet teachers who are not truly Internet teachers. They are traditional teachers and next week they're going to go online. Are we seeing a big problem in that area where there are many teachers who are not prepared for this, they're not given enough training?

**Petty:** Sure...but that's been true of every technology that comes along. I remember teachers who could not work a reel-to-reel video tape recorder and had no idea of how to incorporate videotape into their instruction...

**PJ:** They need to come to OSU...

**Petty:** No. And it wasn't their fault. When new things come along people have to have a chance to learn how to do that and I don't care if you're 55 years old or if you're 15 years old, you still have to learn how to do that.

**Ausburn:** And the pioneers in that field will always be the people who want to do it. I've seen administrators say "this teacher is absolutely hopeless in the classroom, they don't do well with students, so let's put them online!" That's nuts! (Group laughs).

**PJ:** We're seeing so much movement on the Internet with college courses, with college degrees. Are we in a situation where you can be in a program...a degree program at a university, and you can pick and choose from a smorgasbord at MIT, OSU, Texas University...is it possible to do that?

**Petty:** Yes it's possible...it's a political problem...it's a political decision that state legislatures, boards of regents will decide...

**Ausburn:** Because what you have formed in essence in a virtual institution.

**Muns:** They're political, administrative, they're "I want that credit, not you". If it doesn't happen quickly it won't be because the technology won't allow it to happen, it will be because whoever makes the rules says "that's against the rules". And that's what has to change in order for the technology to become effective.

**Ausburn:** Great point...and I know you've had...Career has had a lot of experience with articulation agreements. The problems are not technological.

**Muns:** Oh simple things even in terms of interactive tv classes. Before you can make that happen you have to have two schools agree that they'll have two classes meet at the same time. You'd think that would be an easy thing...it's not.

**PJ:** In conclusion, the information explosion is here to stay. Someone recently remarked that information doesn't become knowledge until it is applied. Our society is on a quest for knowledge, but as we acquire knowledge let us also pursue wisdom, for with wisdom can we truly appropriate knowledge, and after all isn't that what we call education?

I'm Paulette Jones

## Participant Consent Form

I, \_\_\_\_\_, hereby agree to participate in the research project conducted by Graduate Assistant Paulette Jones that provides information on principles and practices in education.

Specifically, this research will seek information regarding effective goals and technologies in teaching whether in a traditional classroom or in a distance learning environment.

I understand that my participation in this research is voluntary, that there is no penalty for declining participation, and that I am free to withdraw my consent and participation at any time.

I understand that the purpose of this research is to improve the effectiveness of teaching in traditional and distance learning courses conducted by Ms. Jones and others at Oklahoma State University and to contribute to the body of knowledge and professional literature regarding teaching and learning.

I understand and agree to the following conditions regarding my voluntary participation in this research:

- My responses will be made on OSU secure websites.
- The data yielded from this research will be used solely for course development, and research purposes.
- Any data from this research used for preparation and publication of professional research literature will be reported only in aggregate and/or by codes. No specific reference to my name or personal identity will be made at any time.
- I understand that I may be contacted for a 20-minute follow-up interview scheduled at my convenience.
- All records of this research will be kept solely by the project director and will be maintained under locked security. All such records will be destroyed upon completion of the research.

If I have questions or concerns, I may contact the project director, Ms. Jones, at Oklahoma State University by telephone at (405) 744-7351, or by email at <pj138@hotmail.com>. I may also contact Sharon Bacher, IRB (Institutional Review Board) Executive Secretary, Oklahoma State University, 203 Whitehurst, Stillwater, OK 74078; phone (405) 744-5700.

I have read and fully understand this consent form. I sign it freely and voluntarily. A copy has been given to me for my personal record.

Date: \_\_\_\_\_ Time: \_\_\_\_\_ (a.m./p.m. - circle one)

Signed: \_\_\_\_\_  
(Signature of participant)

I certify that I have personally explained all elements of this form to the participant or his/her representative before requesting the participant or his/her representative to sign it.

Signed: \_\_\_\_\_  
(Project Director, Paulette Jones)

## **Instructions for Session I**

- *Your participation in this project is completely voluntary and neither the results of this study or your participation will have any bearing on your grade or credit for your class.*
- *Also the results of this study will be completely anonymous and untraceable to you. All of the online components in this study are on OSU secure websites.*
- *When you have completed the pre-test and leave the class, please do not discuss the study with anyone as this may affect the study.*
- *Also, please do not research the questions you were asked because this may also affect the study. You'll find out the answers in your next class.*

*Today we will conduct the first part of a two-part study. The second part will be conducted in your next class meeting. Part one includes:*

- ATLAS Learning Style Survey
- Definition of terms.
- Pre-test

*Part two will include:*

- The teaching method.
- Post-test

*A few of you will be contacted later for a 20-minute interview to find out your observations. Of course this will be scheduled at your convenience.*

**(Bring up the site on the projection computer.)**

*Please log onto this site to access the ATLAS Learning Style Survey.*

*This survey is very short and will only take a few minutes of your time. If you have any problems, please raise you hand. Thank you for your help on this project. You may begin.*

*(Walk around and check that everyone has it up and is taking the survey).*

*(When everyone is finished, bring up the pre-test site & say the following)*

*Now please log onto this site to access the Pre-test.*

*Before we start on the pre-test, I need to point out a few definitions:*

### **Definition of terms**

Online - on the Internet.

Web-based - online materials.

ListServ - an asynchronous text discussion on line.

Synchronous - same time live.

Asynchronous - placed online at one time, but students can access it at their convenience.

Pedagogy - the study of teaching.

***This pre-test has only 15 questions.***

Please take your time and mark the best answer. If you have any problems, please raise your hand. You may begin.

**Pretest** - Please choose the ***best answer***.

**Definition of terms**

Online - on the Internet.

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Asynchronous - placed online at one time, but students can access it at their convenience.

Pedagogy - the study of teaching.

1. There is more student participation in
  - a. the traditional classroom.
  - b. the online course.
  - c. both - there's no difference in the traditional classroom and the online course concerning participation.
  - d. neither - the best type of class/course for student participation is not listed here.
  
2. The type of student who does well in an online course is
  - a. the student who is involved in several extracurricular activities.
  - b. the student who is well liked on campus.
  - c. the student who is a motivated independent learner.
  - d. the student who is successful at traditional learning.
  
3. Generally people who are enrolled in an online course will succeed in it if
  - a. they live sheltered lives without a lot of challenges.
  - b. the only way they can attend college is through an online course.
  - c. they are already successful students.
  - d. they put forth some effort - online courses are easier.
  
4. Online teaching is much better than traditional teaching because
  - a. the courses are easier.
  - b. subject level is more advanced.
  - c. online courses are easier to teach.
  - d. online teaching is not necessarily better than traditional teaching.
  
5. A significant problem with taking an online course is
  - a. boredom.
  - b. taking it seriously since online is easier than traditional.
  - c. that it is much more difficult than a traditional course.
  - d. overcoming a sense of isolation.



6. When comparing asynchronous online learning to synchronous video conferencing,
- video conferencing is better because it is live.
  - online learning is better because you can access it at your convenience.
  - there is no significant difference.
  - neither one are very good. Traditional classroom teaching is the best.
7. The ideal size for an online course is
- 150
  - 100
  - 75
  - 25
8. Teachers who teach an online course have
- a heavier work load than that for traditional courses.
  - a lighter work load than that for traditional courses once all their material is online.
  - the same amount of work as traditional teachers.
  - more time and can teach twice as many courses as traditional courses.
9. Online asynchronous independent distance learning is great for teaching foreign language at the elementary level because
- the students can receive courses not normally taught in their school.
  - younger students pick up language quicker than older students.
  - schools now have more computers available for these grades.
  - at this time, online asynchronous independent distance learning is not well suited for elementary and middle school grades.
10. The successful model for a distance learning course is
- everything is asynchronous online - at your convenience.
  - everything is taught through the synchronous video conferencing.
  - a combination of asynchronous online components and some face-to-face meetings.
  - distance learning is not as effective as traditional learning.

**Session Two** will be conducted in the next class. Subjects will be reminded of the instructions concerning anonymity, security, and that their participation is completely voluntary and will not affect their grade or credit for their class. Session Two will include the respective treatments of text and the subject video. Time will be called after thirty minutes, then subjects will be asked to log onto another secure site in order to take the post-test. The post-test will take approximately fifteen minutes.

### **Instructions for Session II**

- *Your participation in this project is completely voluntary and neither the results of this study or your participation will have any bearing on your grade or credit for your class.*
- *Also the results of this study will be completely anonymous and untraceable to you. All of the online components in this study are on OSU secure websites.*

*Today we will conduct the second part of the study. It includes:*

- *Your learning instrument.*
- *Post-test.*

---

**TEXT ONLY** *(Bring up the learning instrument on the website).*

*Please go to this web address. You will see a transcript of an expert panel discussion. Afterwards you will be asked questions about the transcript. If you wish, you may take notes as you read the text. You'll have thirty minutes to read the text, then time will be called. Are there any questions?*

*If there are any problems, raise your hand. You may begin.*

---

**VIDEO ONLY** *(Have tape ready to roll).*

*Please get ready to view the screen. You may move up closer to the front if you wish. You will see a video of an expert panel discussion. Afterwards you will be asked questions about the video. If you wish, you may take notes as you view the tape. Are there any questions? If there are any problems, raise your hand. I will start the tape.*

---

**ALL GROUPS** *(Bring up the post-test on the website).*

*Now, please go to this web address. You will see the post-test. There is a reminder of the terms defined. This pre-test has only 15 questions.*

*Please take your time and mark the best answer. If you have any problems, please raise your hand. Thank you for your help on this project. You may begin.*

## Post-test

### Definition of terms

Online - on the Internet.

Web-based - online materials.

ListServ - an asynchronous text discussion on line.

Synchronous - same time live.

Asynchronous - placed online at one time, but students can access it at their convenience.

Pedagogy - the study of teaching.

Please answer the following questions based on what you learned from the panel discussion.

1. Dr. Bull noted at the first of the tape that one type of class/course is advantageous for student participation. What type was this?
  - a. the traditional classroom.
  - b. the online course - all students have to participate by typing their comments online.
  - c. both - there's no difference in the traditional classroom and the online course.
  - d. neither - the best type of class for student participation is not listed here.
  
2. According to the panel, the most successful students for online learning are those who are \_\_\_\_\_.
  - a. involved in several extracurricular activities.
  - b. well liked on campus.
  - c. motivated independent learners.
  - d. successful at traditional learning.
  
3. Generally people who are enrolled in an online course will succeed in it if
  - a. they live sheltered lives without a lot of challenges.
  - b. the only way they can attend college is through an online course.
  - c. they are already successful students.
  - d. they put forth some effort - online courses are easier.
  
4. The panel all agreed that online teaching is much better than traditional teaching because
  - a. the courses are easier.
  - b. subject level is more advanced.
  - c. online courses are easier to teach.
  - d. they did not say this in the discussion.
  
5. A major problem the Australians have discovered with distance learning is
  - a. boredom.
  - b. taking it seriously since online is easier than traditional.
  - c. that it is much more difficult than a traditional course.
  - d. overcoming a sense of isolation.

6. When comparing asynchronous online learning to synchronous video conferencing,
  - a. video conferencing is better because it is live.
  - b. online learning is better because you can access it at your convenience.
  - c. there is no significant difference.
  - d. neither one are very good. Traditional classroom teaching is the best.
  
7. Dr. Ausburn said the class size for her distance learning/online class is...
  - a. 150
  - b. 100
  - c. 75
  - d. 25
  
8. Dr. Ausburn noted that the work load for an online course is
  - a. heavier work load than that for traditional courses.
  - b. lighter work load than that for traditional courses once all their material is online.
  - c. the same amount of work as traditional teachers.
  - d. lighter and therefore such teachers can teach twice as many courses as traditional courses.
  
9. Dr. Petty noted that elementary students can learn how to speak French from distance learning courses because
  - a. the students can receive these courses not normally taught in their school.
  - b. younger students pick up language quicker than older students.
  - c. schools now have more computers available for these grades.
  - d. at this time, online asynchronous independent distance learning is not well suited for elementary and middle school grades.
  
10. The successful model for a distance learning course is
  - a. everything is asynchronous online - at your convenience.
  - b. everything is taught through the synchronous video conferencing.
  - c. a combination of asynchronous online components and some face-to-face meetings.
  - d. distance learning is not as effective as traditional learning.
  
11. Which answer best describes your reaction to the panel discussion you read or watched?
  - a. I enjoyed learning from this method of teaching.
  - b. I did not enjoy learning from this method of teaching.

## ATLAS

The following is a duplication of the web pages presented by Dr. Conti for the ATLAS Test. The subject answers about four to six questions that lead them to a description of their learning style. The three styles include Navigator, Engager, and Problem Solver. Below are the questions, descriptions, an explanation of Learning Styles, and Dr. Conti's information concerning validity of the instrument.

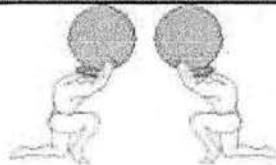
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(Assessing The Learning Strategies of Adults)

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Find out what your learning strategies are. ATLAS is an instrument that allows you to quickly access the pattern of the learning strategies that you use.

<u><a href="#">Start ATLAS</a></u>	<u><a href="#">Learning Strategies Defined</a></u>	<u><a href="#">Validity of ATLAS</a></u>
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(Assessing The Learning Strategies of Adults)

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**Directions:** The following pages have questions on them related to learning in real-life situations in which you control the learning situation. *These are situations that are not in a formal school.* For each one, select the answer that best fits you. Continue this process until you learn your *group name* and the description of your group.



START

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When considering a new learning activity such as learning a new craft, hobby,  
or skill for use in my personal life,

-----

- \* I like to identify the best possible resources such as manuals, books, modern information sources, or experts for the learning project.
- \* I usually will not begin the learning activity until I am convinced that I will enjoy it enough to successfully finish it.

-----

**It is important for me to:**

-----

- \* Focus on the end result and then set up a plan with such things as schedules and deadlines for learning it.
- \* Think of a variety of ways of learning the material.

-----

**I like to:**

-----

- \* Involve other people who know about the topic in my learning activity.
- \* Structure the information to be learned to help remind me that I can successfully complete the learning activity.

## Navigator

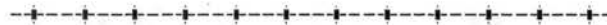


- ✱ **Description:** Focused learners who chart a course for learning and follow it. Subgroup 1 likes to use human resources while Subgroup 2 is more concerned with the organization of the material into meaningful patterns.
- ✱ **Characteristics:** Focus on the learning process that is external to them by relying heavily on planning and monitoring the learning task, on identifying resources, and on the critical use of resources.
- ✱ **Instructor:** Schedules and deadlines helpful. Outlining objectives and expectations, summarizing main points, giving prompt feedback, and preparing instructional situation for subsequent lessons.

The two other types of learning groups are:

- ✱ Problem Solvers
- ✱ Engagers

Return to Start



*Developed by Gary J. Conti and Rita C. Kolody.*

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*For follow-up and comments: [contig@okway.okstate.edu](mailto:contig@okway.okstate.edu)*

## Engager



- ✱ **Description:** Passionate learners who love to learn, learn with feeling, and learn best when actively engaged in a meaningful manner. Subgroup 1 likes to use human resources while Subgroup 2 favors reflecting upon the results of the learning and planning for the best way to learn.
- ✱ **Characteristics:** Must have an internal sense of the importance of the learning to them personally before getting involved in the learning. Once confident of the value of the learning, likes to maintain a focus on the material to be learned. Operates out of the Affective Domain related to learning.
- ✱ **Instructor:** Provide an atmosphere that creates a relationship between the learner, the task, and the teacher. Focus on learning rather than evaluation and encourage personal exploration for learning. Group work also helps to create a positive environment.

The two other types of learning groups are:

- ✱ Navigators
- ✱ Problem Solvers

[Return to Start](#)

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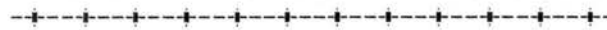
## Problem Solver



- ✦ **Description:** Learners who rely heavily on all the strategies in the area of critical thinking. Subgroup 1 likes to plan for the best way to proceed with the learning task while Subgroup 2 is more concerned with assuring that they use the most appropriate resources for the learning task.
- ✦ **Characteristics:** Test assumptions, generate alternatives, practice conditional acceptance, as well as adjusting their learning process, use many external aids, and identify many of resources. Like to use human resources and usually do not do well on multiple-choice tests.
- ✦ **Instructor:** Provide an environment of practical experimentation, give examples from personal experience, assess learning with open-ended questions and problem- solving activities.

The two other types of learning groups are:

- ✦ Navigators
- ✦ Engagers



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Oklahoma State University  
Institutional Review Board

Protocol Expires: 4/24/02

Date : Wednesday, April 25, 2001

IRB Application No / ED01112

Proposal Title: EFFECTIVE INTERNET EDUCATION

Principal  
Investigator(s) :

Shirley Paulette Jones  
1709 Godhania Road  
Edmond, OK 73003

Bruce Petty  
261 Willard  
Stillwater, OK 74078

Reviewed and  
Processed as: Exempt

Approval Status Recommended by Reviewer(s) : Approved

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Signature :



Carol Olson, Director of University Research Compliance

Wednesday, April 25, 2001

Date

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modifications to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

VITA 2

Shirley Paulette Jones

Candidate for the Degree of

Doctor of Education

Dissertation: A COMPARISON OF ONLINE TEXT AND SUBJECT  
VIDEO IN RELATION TO LEARNING STRATEGY

Major Field: Curriculum and Instruction

Biographical:

Personal Data: Born in Andrews, Texas, on October 19, 1954, the daughter of  
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