LEARNING STYLES IN AN ONLINE ENVIRONMENT:

STUDENTS’ DOMINANT LEARNING STYLES AND LEARNING OUTCOMES

IN AN ONLINE HEALTH EDUCATION CLASS

NI BUENO

PEPPERDINE UNIVERSITY

A DISSERTATION SUBMITTED TO THE GRADUATE SCHOOL

IN PARTIAL FULLFILMENT OF THE REQUIREMENTS

FOR THE DEGREE

DOCTOR OF EDUCATION

DEPARTMENT OF EDUCATION AND PSYCHOLOGY
# Table of Contents

Chapter One ......................................................................................................................... 1
  Introduction ......................................................................................................................... 1
  Learning Theories and Online Education ........................................................................... 1
    Multimedia and delivery of online education .................................................................. 2
  Theoretical Basis for the Study ......................................................................................... 3
  Problem Statement ............................................................................................................. 4
  Purpose ............................................................................................................................... 5
  Research Questions ............................................................................................................ 6
  Significance of the Study .................................................................................................... 6
  Limitations of the Study ...................................................................................................... 7
  Definitions ......................................................................................................................... 8

Chapter Two ......................................................................................................................... 12
  Review of Literature ......................................................................................................... 12
  Learning Styles .................................................................................................................. 12
  Online Education .............................................................................................................. 17
    History of online education .............................................................................................. 17
    Online education environment ......................................................................................... 17
    Students’ characteristics ................................................................................................. 18
  Review of Online Learning Theories ................................................................................. 19
  Delivery Methods of Information ..................................................................................... 21
    Technology and leadership ............................................................................................... 25
  Qualitative Techniques and Instruments ......................................................................... 28
    Instruments used in research efforts ............................................................................... 28
  Conclusion ......................................................................................................................... 32

Chapter Three: Methods ...................................................................................................... 34
  Purpose ............................................................................................................................... 34
  Research Questions ......................................................................................................... 34
  Analysis Population and Data Collection ......................................................................... 35
    Data collection plan ........................................................................................................ 35
    Sample population .......................................................................................................... 37
  Human Subjects Research ............................................................................................... 38
  McVay’s Learning Style Survey Instrument ..................................................................... 40
  Validity and Reliability ...................................................................................................... 42
  Limitations of Qualitative Research .................................................................................. 43
  Data Analysis Techniques ................................................................................................. 43

References ............................................................................................................................ 45

Appendices
  A. Technology Skill Self-Assessment ............................................................................... 50
  B. McVay’s Learning Style Survey ................................................................................... 51
  C. Human Subjects Informed Consent .............................................................................. 57
  D. Online Interview Questions ......................................................................................... 58
  E. Teaching Goals Inventory ............................................................................................ 59
Chapter One

Introduction

Online learning, Internet-based instruction, web-based training, distance learning, and e-learning are terms that are used interchangeably but all enlist the same concept: virtual classrooms utilized for educational learning. Online educational programs are mainly comprised of higher education curricula. Access to e-learning programs is available via non-profit and for-profit institutions, corporate training, educational brokers, new media, and publishing companies. As adults continue to quest for greener pastures and more knowledge, online education, or e-learning, has become one of the largest economic industries in the nation. According to Clarke & Hermens (2001) online education is a $772 billion industry, ranked only second to healthcare. Wall Street is recognizing online education in the form of e-learning stocks. Online students are mainly adult learners seeking greater opportunity and are extremely successful in the e-learning environment.

Learning Theories and Online Education

One may ask if learning theories can be transferred from the traditional classroom to an online learning environment; the answer is simply yes. For example, two learning theories, constructivist learning theory and behaviorist learning theory are often referred to when addressing online learning (Berns & Erickson, 2001). The constructivist theory posits that learning is student centered and that learners will utilize new information learned and find connections with previous experience and knowledge (Liaw, 2001). While the behaviorist theory indicates that learning is teacher directed and has a more
pedagogical approach to teaching methods incorporated in the learning environment (Caffarella, 1993).

According to Wonacott (2000), many educators feel that web-based training is self-directed and utilizes guided learning activities. Furthermore, computer instruction has shown to be motivating and a more enjoyable learning method for the student (Liaw, 2001). In fact, traditional teaching methods have proven not as effective as programmed instruction, as seen in traditional classroom environments due to immediate knowledge, learning individually, and skilled instruction (Liaw, 2001). Utilizing this information collaboratively, learning theorists feel that adult learners will be the most effective online learners based on their self-regulating behavior.

*Multimedia and delivery of online education.* Adults are the primary participants in e-learning; their orientation to the learning process and prior experiences become critical components that will either enhance or distract the learning experience. To utilize both orientation and prior experience of the learner, a variety of multimedia is available for instructors: computer, audio-graphic, telephone, and video technology. Computer technology for online teaching usually refers to using the Internet, blackboards, bulletin boards, chat rooms, and newsgroups. Video technology can be in the form of cable, digital streaming, videoconferencing, and satellite. Audio-graphic technology utilizes audiotapes and radio, and teleconferencing with telephone technology. Utilizing more than one available technology source will assist in reaching all the learners, as each individual will respond differently to the educational tool.

Finally, adult learners succeed at e-learning due to the ease and comfort of the environment. As most e-learners are also employed on some level, students have the
convenience of studying at any time. Many students find it easier to speak out electronically, while other students do not participate due to lack of interpreting the message (Imel, 2001). Web-based education is ideal for individuals who can not attend traditional programs due to full-time jobs and/or family responsibilities (Clarke & Hermens, 2001). In addition, feedback from the educator can be expedited, thus increasing the learning value for each student. Online classes have more opportunities for synchronous or asynchronous group training and individual training (Kilby, 2001). The opportunities and advantages seem endless, but clearly e-learning holds a valuable place in the educational arena.

Theoretical Basis for the Study

The theoretical basis for this study will be based on adult learning theories, learning style theory, and teaching methods applied in an online environment. This study will examine a case which will be built on educational theories, instructional design, and the learning styles associated with learning in an online environment. Much of this study will be formed around Knowles’ (1998) adult learning theory, the social constructivist theory, and McVay’s (2000) Learning Style Survey. Further, a hypothesis will be formed about how a student’s learning style contributes most to her or his learning in an online environment. This study will also include learning theories proposed by Thorndike (1914), Dewey (1900), Piaget (1985), Gardner (1983), Gayne (2000), and Bloom (2002). Learning style assessments, such as Kolb’s (1984) Learning Style Inventory (LSI), The Gregorc (1985) Styles Delineator (GSD), Dunn, Dunn, and Price’s (1981) Learning Style Inventory, and McCarthy’s (1990) 4MAT will be reviewed in chapter 2, along with McVay’s (2000) Learning Style Survey. Kearsley’s (1986) projected model of distance
education, along with the experiential approach to learning, will also be included in the background of this study. Finally, the author will review various leadership styles and the importance of effective leadership in an online environment.

Problem Statement

While online learning can be a powerful and effective educational vehicle, the online skill level of the instructors and their ability to deliver materials to learners can be a negative issue. If the instructor has inadequate technical skills or technical support, students may find that technology only interferes with their learning (Imel, 2001). In addition, a limited bandwidth or browser may take longer to download graphics, video, sound, and performance of the materials. This limitation may also affect the method of teaching as well as learning. Technical support for certain multimedia and software programs is necessary for troubleshooting. If the principles of collaborative learning are to be applied to an online class, the materials should be presented in a way that would encourage students to equally participate.

As the online education industry matures, there is an emergent need for adequate instructor training and technical support to appropriately implement known learning theories in an effort to maximize the educational gains of the adult online learner. Learning theories encompass content development, course delivery methods, and student learning principals. It is not a safe assumption that high quality traditional classroom teachers will automatically transition into skilled content developers in the online teaching environment. Likewise, the methods employed digitally should not necessarily mimic traditional delivery methods, but should employ the best available practices from the body of knowledge addressing teaching and learning theories.
Finally, although the student learning principals applied in a traditional learning environment may well apply to online learners, learning styles may also impact how a student’s prior experience and readiness to learn might influence her or his learning.

**Purpose**

As stated previously, many technological tools are available for instructors to utilize to facilitate the learning environment of e-learning courses. In addition, there are several learning theories that can be utilized in online programs and virtual classrooms. Students must also be considered in the equation of online learning success as each student will vary in computer skills and intellectual level. This variance will affect how information is retained and processed in the virtual learning environment. Since each adult employs a different learning style, various delivery methods from instructors are also an important component in the e-learning environment.

The purpose of this case study will be to understand how students learn in an online environment by applying various delivery methods of information which will accommodate the different learning styles of students enrolled in a community college freshman level online health education class. In order to understand the impact of learning styles in online learners, the following will be considered: (a) self-evaluation of learning styles in students, (b) utilizing the social constructivist and behaviorist theories in the virtual classroom, (c) student learning behaviors, (d) student technological skill level, (d) interaction between students and the instructor, (e) student interactions with each other, and (f) students’ evaluation of their learning experience. At this stage in the research, learning styles in online students will be
generally defined as auditory, visual or kinesthetic. Further, Creswell’s (1998) research design will be used as a model for this qualitative study.

**Research Questions**

1. What will be the dominant learning style (visual, auditory, or kinesthetic) used most frequently by students in an online health education class at a Southern California community college?

2. Which learning style will contribute most to a student’s learning in an online health education class?
   - What will be the learning theories employed in the virtual classroom of students enrolled in a freshmen level community college online health education class?
   - What will be the delivery methods of materials in an online health education class at a Southern California community college?
   - What influence do interactions have on learning in an online environment?
   - What is the instructor’s role in accommodating students’ learning styles and facilitating students’ learning?

**Significance of the Study**

Experiential learning states that individuals learn through experience (Brookfield, 1995). Methods, such as puzzles, case studies, role play, and simulation are often affiliated with experiential learning (Brookfield, 1995). These methods should accommodate students who learn by listening (auditory), watching or reading (visual), and those learners who learn best by interacting with other students (kinesthetic).
Although learners possess more than one learning style, one style usually dominates the other two styles.

This paper will focus on the visual, auditory, and kinesthetic learning styles as defined by McVay (2000). The researcher will use McVay’s (2000) Learning Style Survey to compare learning styles with students’ learning enrolled in a Southern California community college freshmen level online health class.

Limitations of the Study

The findings of the study reflected the following limitations and assumptions:

1. The study will be restricted to community college students.
2. The sample population will be restricted to students enrolled in an online health education class.
3. The online health education class will be a freshman level class.
4. The online health education class is a part of the general education requirement, and can be taken either online or face-to-face.
5. The study will be limited to self-reporting of the students. It is assumed that they will answer the questions honesty and report the results without altering the survey information.
6. The study will be limited one instructor’s (the researcher) online experience and teaching capability.
7. The study will be limited to the results of McVay’s (2000) Learning Style Survey and interpreted by the author.

The researcher observed that Kolb’s Learning Style Inventory and Dunn, Dunn, and Price’s Learning Style Inventory has been more frequently used in the research. McVay’s
Learning Style Survey will be used because of the easy online access and immediate generated results.

This research paper will review literature related to the various learning styles of students and the different delivery methods that can be used by an online instructor to accommodate an auditory, visual, and kinesthetic learner. Online class and student characteristics and delivery methods will then be reviewed. Learning theories which have been commonly applied in an online environment, particularly Knowles’ et al. theory of andragogy and constructivist and behaviorist theories will also be reviewed in chapter 2. Chapter 3 will describe the qualitative study and instrument that will be used, along with data collection methods and human subjects’ protection procedures. Chapter 4 will describe results from the data collection, and a comprehensive discussion of the results and recommendations will be presented in chapter 5.

Definitions

Adult learner: An individual who is self-directed to learn.

Andragogy: The theory of learning in which individuals are self-directed and can apply information into her or his life.

Androgogical: A student-directed teaching method.

Behavioral objective: A prediction of what the successful learner can do; how the student’s behavior may change as a result of the course.

Collaborative learning: A student-centered environment in which students interact with other students and the instructor.

Face-to-face (FTF): traditional classroom instruction consists of a lecture to students, question and answer period, and in some environments, class participation with activity.
Online education significantly differs from the traditional classroom environment because students do not gather together in one location at a predetermined established time. Students of online learning environments enroll in a class, receive a syllabus and are expected to be self-regulated and guided electronically through the class material and content.

Learning outcome: Gathering and evaluation of evidence of student performance matched against the expected ability

Learning theory: An approach and method to student learning proposed by various theorists, such as Knowles, Piaget, Vygotsky, and Dewey.

Online Learning

a. Internet-based: Computers connected by an interconnected system of networks.

b. Distance learning: Classes are taken off-campus and accessed through the Internet.

c. E-learning: Learning which takes place in a virtual classroom.

Pedagogy can be defined as a teaching style in which learners are told what they need to know and assessed what they were told; a teach and test approach.

Pedagogical: A teacher-centered teaching method.

Technology:

a. Computer Technology:

i. Blackboard: An online course management system.

ii. Bulletin board: A Web-based server software platform that offers a course management system for online classes.
iii. **Chat Room**: Communication in real time in a site on the Internet.

iv. **Newsgroup**: A discussion of a specified topic in an area on a computer network; usually the Internet.

v. **Videoconferencing**: Electronic communication of discussions between two or more groups of people who are in different places.

**Instructional delivery methods:**

a. **Social Constructivist Theory**: A learning theory which focuses on interaction and collaboration among students.

b. **Constructivism - Student directed**: A student centered approach which posits that learners will utilize new information learned and find connections with previous experience and knowledge.

c. **Behaviorism - Teacher directed**: Directed instruction which focuses on human behavior.

**Web-Based Communication:**

a. **Asynchronous**: A communication system in which data transmission is not delivered in real time; not existing at the same time. Examples: email or discussion boards.

b. **Synchronous**: A transmission technique in which communication occurs in real time. Example: chat rooms.

c. **E-mail**: Electronic messages sent through the Internet.

d. **Discussion Board**: Asynchronous communication in a location where students post messages.
The following terms will be used throughout the study:

*Traditional Classroom:* education can be defined as students gathering together in a single location at a predetermined scheduled time to receive a lesson from an instructor.

*Online learning technologies* can be used as tools to enhance the learning experience of the student.
Chapter Two

Review of Literature

This paper will focus on three learning styles: auditory, visual, and kinesthetic. Even with the new research on learning styles and multiple intelligences, community colleges continue to use traditional lectures when delivering information. Many instructors don’t take the students’ culture, beliefs, and values into consideration when developing the online curriculum (Jones, Reichard, & Mokhtari, 2003). The majority of students attending community college are 18-24 years old male students (Jones et al., 2003). This population has grown into a cultural campus of low-income, minority, non-traditional, and high-school dropouts (Jones et al., 2003). Unfortunately, these students are “academically socialized” by their previous experience in school and cultures of the home and community (Jones et al., 2003, p. 364). Feemster (1999) noted that student enrollment rates and dropout rates have increased and that one in every three students does not return to college after the freshman year (as cited in Jones et al., 2003).

Learning Styles

Carl Jung (1927) first observed the different ways in which individuals perceived, made decisions, and the way in which individuals interacted (as cited in Silver, Strong, & Perini, 1997). Other researchers, notably, Isabelle Myers and Kathleen Briggs (1977), Bernice McCarthy (1982), and Anthony Gregorc (1985) expanded on Jung’s research by developing assessment tools to assess differences in human learning (Silver, et al., 1997). These learning style models focus on how individuals absorb, think, and evaluate
information. Many theorists feel that learning is a result of how a person feels and thinks, and that learning styles are not fixed but develop throughout life (Silver, et al., 1997). Dunn and Dunn (1999, 1993) define learning style as “the way in which each person begins to concentrate on, process, internalize, and remember new and difficult academic content” (as cited in Denig, 2004).

There are many theories on learning styles (Vincent & Ross, 2001). Personality types have also been theorized to having an influence on learning. Instruments, such as Myers-Briggs Type Indicator and the Keirsey Temperament sorter are two instruments commonly used by researchers to determine an individual’s personality type. Kolb (1984) formed a learning style model based on Jung’s theory of adult development in his Learning Style Inventory (as cited in Jones et al., 2003)

Research concludes that students learn best when learning by their preferred learning style (Jones, Reichard, & Mokhtari, 2003). Students can be taught how to best utilize her or his learning style. Further, learning style practitioners conclude that some learners are intuitive about their learning styles, whereas other students need to be taught how to best use their learning style (Denig, 2000). Jones et al. (2003) found little research on which students were able to match their identified learning styles in different disciplines. According to Silver et al. (1997), learning style models are limited to the discipline and content in which they are distributed. Many times, learning environments are altered to challenge or match a learner’s style without addressing the effect of content and purpose (Silver, et al., 1997). Jones et al. (2003) suggest that “learning styles [in community college students] are subject area sensitive” (p. 373), and find that many students are not aware of their learning styles or preferences. They also noted that
teachers who use different interaction styles and teaching strategies are more effective, and concluded that effective professional development is needed.

Learning style theory has been studied by psychoanalysts, where learning is affected by both psychological factors and personality. (Silver, et al., 1997). Silver, et al. (1997) suggest the following for teachers to follow when developing their curriculum: keep records of the different learning styles used and the learning styles not used; offer students a choice in learning styles and encourage them to use a style they don’t normally use; guide students through an assignment, as in group projects; encourage students to communicate with each other and bring in their own concerns, interests, and learning styles.

**Learning styles defined.** Visual learners learn best by seeing images; they think by transferring what they hear into images (Vincent & Ross, 2001). The visual learner is quiet and finds difficulty in verbal instructions. This individual learns best by watching and reading (Vincent & Ross, 2001). Visual learners recall information by glimpsing upwards and recalling the images “they have stored on their picture screen.” (Vincent & Ross, 2001, p. 42). They communicate by using phrases such as “I get the picture” and “I see.” The visual learner performs well on exams; most are able to read and convert the words into images (Vincent & Ross, 2001). Visual learners are organized and neat in their writing. An instructor can accommodate a visual learner by providing visual aids, charts, pictures, and assignments which require writing.

An auditory learner enjoys talking and listening more than writing. In order for an auditory individual to understand, they must fully listen to an explanation. Information is filtered through their repeating and listening skills (Vincent & Ross, 2001). The auditory
learner will solve problems by discussing them; their speech patterns reflect how they think (Vincent & Ross, 2001). The auditory student is the most talkative of the three types of learners, learns by listening, and enjoys class discussions (Vincent & Ross, 2001). An instructor can accommodate an auditory learner by providing auditory stimuli, such as reading aloud and engaging the student in group activities, and should encourage the student to participate in class discussions.

Kinesthetic or tactile learners are poor listeners, physically express their emotions, and are outgoing (Vincent & Ross, 2001). A kinesthetic learner will learn by doing; by touching or feeling in order to understand. They remember by touching and feeling, and learn best with hands-on activities (Vincent & Ross, 2001). They are usually restless in a classroom and have difficulty in getting focused and paying attention. They commonly use phrases like “I feel.” Kinesthetic learners are not organized or neat; they usually have difficulty demonstrating what they know in a traditional classroom setting (Vincent & Ross, 2001). An instructor can accommodate kinesthetic learners by involving them in discussions and involve them in developing projects.

Gardner introduced the concept of multiple intelligences in 1983, which theorized that problem solving is related to seven intelligences (as cited in Vincent & Ross, 2001). Howard Gardner’s (1983) theory of human cognition (as cited in Hengstler & O’Neill, 2002) is a theory of seven intelligences and learning styles: Intrapersonal, Linguistic, Body Kinesthetic, Interpersonal, Musical, Logical-Mathematical, and Visual-Spatial (Vincent & Ross, 2001). Some learners prefer to reason and problem solve, while others learn more effectively through graphic images. Intrapersonal learners who are more individualized and self-paced will learn effectively by journaling, and writing about their
learning experiences. Linguistic learners learn best through reading and writing. Linguistic learners will be challenged by writing, games, and computer activities. Learners who are more body-kinesthetic will use body movement, verbalize, and touch in their learning process. They will benefit from demonstrating real situations to other students; through chat rooms or discussion boards. Interpersonal learners are challenged by video conferencing and audio conferencing, email, and interacting with other students. A student who learns through jingles and songs is considered a musical learner. A logical-mathematical learner is challenged by numbers and “high order thinking” (Vincent & Ross, 2001, p.38). These students can increase their learning by puzzles and problem solving. Visual-spatial learners learn through graphics; thus they learn more effectively with charts, video, pictures, and models. Each type of learner will learn information differently; combining these seven intelligences into the online course content can accommodate all learning styles.

Gayne (2000) suggests a nine-step approach to instructional online design: (a) gain attention of the students through sounds, animation, or a critical thinking question; (b) communicate learning outcomes to students to further motivate them; (c) provide a frame of reference for students to understand why the information is important; (d) use text, video, graphics, and audio to organize and explain the information; (e) use examples and diagrams to further help students understand the concepts; (f) provide self-graded quizzes to assess students’ understanding; (g) provide feedback and explain why an answer is wrong or right; (h) develop a comprehensive exam at the end of each lesson to measure students’ performance; and (i) emphasize how the new knowledge can be used to enhance retention (as cited in Murphrey, 2001).
Online Education

History of online education. Distance learning was once considered an unconventional type of education; writing and mail were used for information delivery (Kearsley, 1998). The television has been used for many years in distance education. Technology has been a large cause for advancing and mainstreaming distance education (Kearsley, 1998). Today, delivery systems include teleconferencing, online networks, and television instruction; thus more people are able to access networks and communicate electronically. Distance education has largely been shaped by adult learners who study part-time (Kearsley, 1998). Less than one in ten families with annual incomes under $15,000 own a computer (Russell & Ginsburg, 1999). In addition, virtual schools are on the rise, offering only distance education; many traditional classrooms currently have computers and large screen projectors (Kearsley, 1998).

Online education environment. The online learning communities provide students with learning and development, social collaboration, and an array of learning environments. In online classes, technology and social context are both important; therefore educators should encourage students to actively communicate in group discussions. However, teleconferencing and video conferencing may not inherently improve student learning or interaction in virtual education (Huang, 2002); this multimedia should not be used to duplicate a traditional classroom setting. According to Russell and Ginsburg (1999), online technology provides communication and community by bringing individuals with common interests together. A strong learning community can initiate lifelong learning. Technology supports political, social, psychological, and economic arenas in a learning environment (Imel, 2001). The inability to build a learning
community may be hindered by the lack of technical skills, gender, culture, or social class of the individual; some researchers feel that technology can create “inequalities in education” (Imel, 2001, p. 1).

Many online learning environments are a replicate of traditional face-to-face (FTF) classes with similar pedagogical styles of teaching (Jonassen, 2002). An instructor should utilize different teaching approaches and presentation skills (Kearsley, 1998). Structure can affect a learner’s ability to control their environment and what they learn. The structure of the classroom in online classes is not consistent with all instructors. Instructors have many choices for delivery of online material; the type of delivery will depend on the type of learning style of the student and the type of structure. Moore’s (1996) theory suggests that additional dialogue creates less class structure, which will enhance human interaction (as cited in Kearsley & Lynch, 1996). A controlled environment, such as teleconferencing, has more structure, whereas a less structured environment is more discussion-based, as demonstrated in a chat room (Kearsley & Lynch, 1996).

**Students’ characteristics.** A student’s prior experience with technology and computers, ownership of a home computer, and personality will affect her or his learning (Vincent & Ross, 2001). Online student characteristics may include having a computer at home, prior experience, and personality “produce gender difference towards computers” (Volery & Lord, 2000, p. 218). The student must have self-discipline when enrolled in an online class; many students enter online classes with the perception that the class will be easier than traditional classes. Online classes that are well planned will engage students by integrating group work, and weekly or daily communication through asynchronous
(such as e-mail or discussion boards) and synchronous (such as chat rooms) formats (Sales-Ciges, 2001).

**Review of Online Learning Theories**

According to Knowles, Holton, and Swanson’s (1998), adults learn through a core set of learning principles. This set of learning principle is known as the six principles of andragogy: the learners need to know, the self concept of the learner, prior experience of the learner, the learner’s readiness to learn, a learner’s orientation to learning, and her or his motivation to learn.

E.L. Thorndike’s (1914) behaviorist theory addressed the psychology of learning, in which a student forms links between stimuli and responses (as cited in Berns & Erickson, 2001). Thorndike (1914; 1932) believed that learning was based on six laws: the law of readiness; the law of exercise; and the law of effect; the law of primacy; the law of intensity; and the law of recency (as cited in Vincent & Ross, 2001). Students will learn best when they are motivated and ready to learn. An instructor should motivate students by presenting information in a way that would feel relevant to the student (Vincent & Ross, 2001). The Law of Exercise posits that repeating information will help students remember information. If students feel satisfied with their learning, then the Law of Effect will be accomplished. The Law of primacy suggests that students must be taught correctly the first time in order to prevent reteaching information, in which may or may not be relearned. Additionally, The Law of Intensity relates students learning to information presented in a dramatic or exciting manner, rather than posting a written lecture. Finally, the Law of Recency demonstrates that students will remember what is most recently taught (Vincent & Ross, 2001). Behaviorism, or directed instruction
focuses on human behavior. The instructor controls the environment (teacher-centered) and the student’s behavior can be shaped to accomplish learning (Garrick-Duhaney & Duhaney, 2000). Learning is more individual rather than collaborative; emphasis is on memorization, lectures and testing.

In the theories of Dewey (1900), constructivism suggests initiating critical thinking and active participation in problem solving by using an authentic learning activity in which students will want to relate and engage in the activity (as cited in Berns & Erickson, 2001). Dewey (1900) also felt that the reasoning process could be improved through education, and the role of the instructor should be a guide rather than a director (as cited in Huang, 2002). The constructivist theory can be divided into cognitive and social context. Jean Piaget’s (1985) cognitive constructivist approach theorizes that learners relate new information to their existing information or previous knowledge (as cited in Liaw, 2001). The social constructivist approach, defined by Vygotsky (1978), emphasizes learning based on social context (as cited in Liaw, 2001) and the importance of student-to-student and student-to-teacher interaction. Meaning is constructed by interaction in the environment and the ability to process the new information. These theories can be related to Knowles’ et al. description of andragogy, “adult learning is associated with the everyday problem of adults in their social world” (Wilson, 1993, p. 74).

Social constructivists feel that interactive and collaborative learning are ways to motivate and stimulate learners, and initiate critical thinking skills (Moller, Prestera, Harvey, Douglas-Keller, & McCausland, 2002). Adult learners will actively participate if they have strong self-direction for learning. The Internet is an information only provider;
online collaborations and discussions may further facilitate learning. Social and interpersonal skills may also be improved by online interaction; therefore the facilitator should establish a non-threatening environment in group discussions.

*Delivery Methods of Information*

Real world learning is more activity based and involves problem-solving rather than content based (Jonassen, 2002). Thus, an individual must rely on knowledge in order to solve the problem. Most modern day classroom instruction teaches students about a subject and not how to perform a task related to the subject; this type of teaching can hinder students’ ability to develop knowledge-seeking skills (Jonassen, 2002). Students need to learn problem solving skills, both in face-to-face and online classes. Learning may be maximized by providing a detailed study guide which would reference self-assessments and offer outlines of summaries (Kearsley & Lynch, 1996). A highly interactive delivery system will involve students by providing reassurance and more open forums. Moller, et al. (2002) proposes an “organic knowledge building model” (p. 49), a type of instructional design in which an environment is created to facilitate learning by providing any tool or idea necessary to help learners achieve their goals. In addition, this model suggests an overlap of the learner, the context, the problem, and the learning environment.

Universities, such as University of Maryland, Ohio University, Stanford University, and the University of Tennessee use synchronous and asynchronous technologies in order to meet the students’ needs; most of these universities combine technology with FTF interaction (Eastman & Swift, 2001). Because of the advance in technology, traditional classes may not provide enough stimuli for students (Eastman &
Swift, 2001). Communication and Information Technologies (CIT) could be a significant building block in students’ learning experiences through teaching, assessment, and learning (Hall, 2002). When developing online course content, the instructor should ask what his or her personal and instructional goals are and the purpose of developing the online class (Schrum, 1998). The course web site should accommodate different types of learners. Delivery methods must present to a variety of needs. An effective instructor is more likely to not use the top-down method of instruction, but will utilize more team collaboration and group discussions (Eastman & Swift, 2001). This new online learning environment should have a different teaching style and course content from traditional lecture classes.

If the delivery of technology is inappropriate to the content of the class, the instructional design may have little effect on student achievement (Eastman & Swift, 2001). Students feel successful when they are able to work through assignments at accelerated pace, have family support, have a knowledge of technology and experience with online classes, and have a goal when signing up for an online class (Schrum, 1998). Self-direction is not the same as self-motivation; lack of a structured home environment may hinder learning (Fidishun, 2002). If a student is faced with distractions while engaging in online classes, their ability to learn could be hindered. Student will need to learn self-motivating skills as part of the online learning experience.

The online instructor’s role. An online instructor has four roles: intellectual, social, organizational, and technical (Eastman & Swift, 2001). The intellectual component involves the development of the course content and facilitation of critical thinking by posting a question on the discussion board. An instructor is responsible for
developing an online community which will benefit each student. The organizational role of the instructor plans activities and the course content in advance. The instructor must be familiar with the technology and confident that the students are comfortable with the different technologies offered. Instructors need to be trained in instructional design to ensure a successful online program and learn how to teach effectively in online classes (Eastman & Swift, 2001).

Volery and Lord (2000) found a significant relationship between teaching effectiveness and technology. While online learning can be a powerful and effective educational vehicle, the online skill level of the instructors and their ability to deliver materials to learners can be a negative issue. Tracking of a student’s daily activities is one way an instructor can monitor active participation. Webster and Hackley (1997) further suggest that learning outcomes are influenced by the instructor’s attitude and control towards technology and teaching style (as cited in Volery & Lord, 2000). Instructors need to establish communication with students through email and virtual office hours. Instructors should be able to perform basic trouble shooting tasks with technology, such as enrolling a student into the online class, modifying passwords, and changing course settings.

Synchronous and asynchronous communication, and problem based assignments will engage students. Distance learning individuals can be isolated; many instructors try to compensate with the use of videoconferencing and Internet conferencing. It is important for instructors to not overlook the objective of adult learning rather than using the latest technology. Social context could be better applied with chat rooms and bulletin boards. The learner should determine the validity and value of learning. The instructor
should assume the role of a facilitator and not try to control learning. According to Huang’s (2002) constructivists’ approach, pre-authentication is controversial because the developer of the multimedia may have a different perception from the instructor and the student. Evaluation of the learner’s online learning is difficult; according to Dewey (1938), the quality of students’ learning should be used in assessing their understanding (as cited in Knowles et al., 1998).

Students typically learn what they are told when presented in a pedagogical delivered format, thus they have become more dependent learners (Fidishun, 2002). It is important for an instructor to help students understand the reasons for learning and how it may be applied to their lives (Fidishun, 2002). The instructor can initiate the learning process by asking the students FTF or online how the class will help them in meeting their goals, what they expect to learn, and how the information will be utilized in the future; this may help students to see more value in the assignments (Fidishun, 2002). The instructor can reflect on the students’ goals throughout the class and provide examples of using the information in the future. One goal of the instructor should be to develop activities to help students increase their quality of life and self-esteem (Fidishun, 2002). Students who are new to learning as an adult are not yet self-directed and will need more structure. This can be achieved by providing short, directed online tasks for new adult learners to follow (Fidishun, 2002).

Tests, quizzes, and project activities are commonly found in an online environment to assess students’ learning. Online activities must integrate different learning styles and cognitive strategies (Stolovitch & Keeps, 1999). Discussion boards and group projects, in which students can share ideas and concepts, are two examples of
participation and application of information presented. Group projects can include slideshow presentations. Critical thinking can be implemented by asking the students thought-provoking questions and asking them to post their responses on a discussion board or meet in a virtual chat room for synchronous discussion. An online class can be structured with puzzles and pictures. Chat rooms and discussion boards, video clips with experts speaking or demonstrating a technique will engage students. A practical format, which allows the student to build from a basic idea and the option of repeating the same information more than once, will engage students in the learning process. It should not be difficult for the student to navigate through the website. Quizzes and exams can be formatted in a game style to encourage interaction.

*Technology and leadership.* Technology leadership is one form of leadership which integrates more innovation (Kearsley & Lynch, 1992). Schirduan and Case (2004) define “mindful curriculum leadership” as a teaching style in which instructors base their curriculum on intelligences of the student (p.87). They further suggested that this approach can increase learning outcomes and self-concept of learners. Although this is a pedagogical approach to teaching, it takes into account the interest in a student’s learning and ability.

Instructors need to define their teaching purposes in online courses. They should be subject matter experts and have a well developed framework on which to build (Stolovitch & Keeps, 1999). As the instructor is creating the online class, the instructor should ask, “How can technology be used to enhance learning?” (Murphrey, 2001, p. 14). Many individuals who are new to online environments may lack the technical skills. Technology may interfere with the humanistic view of teaching and learning (Kearsley &
Lynch, 1992). It is the instructor’s responsibility to build a learning community in an online environment. Mason (1991) categorizes an instructor’s role into organization, social, and intellectual (as cited in Sales-Ciges, 2001). An instructor plans the course content by setting timelines, introducing procedures, and tracking students’ activities. The environment should feel safe for students to exchange ideas and information. The instructor should encourage group participation by asking students to contribute, and by creating activities that requires each student to participate (Sales-Ciges, 2001). Lastly, the instructor has a role as a facilitator in discussions by giving students feedback and thoughts on discussion board responses.

Instructors need to consider how to implement human interaction in a virtual classroom and be prepared to guide the students through their interpretations of the materials (Stolovitch & Keeps, 1999). An instructor should consider how to generate students’ interactivity for feedback, participation, communication, motivation, discovery, and clarification. When presenting activities, the instructor should focus on the student’s understanding and her or his ability to transfer the information into real-life. The online activities should be achievable and rewarding in order to keep the student motivated (Wiggins & McTighe, 2001).

Northouse (2001) defines leadership style as “the behavior patterns of an individual who attempts to influence others” (p. 57). Directive behaviors are task related and guide the individual through the task; whereas supportive behaviors are based on relationships and are more facilitating. Instructors should have control of their roles in the online courses and feel competent in their accomplishment of developing and teaching an online course. Students’ confidence in using technology will increase if they feel their success is
due to their efforts and abilities (Stolovitch & Keeps, 1999). Didactic instruction is crucial for developing knowledge and enabling skills (Wiggins & McTighe, 2001). It involves demonstrations and lectures, and is more of a listening and question/answer approach.

Angelo and Cross (1993) developed the Teaching Goals Inventory online as an extension of the book, *Classroom Assessment Techniques: A Handbook for College Teachers*. The self-assessment is to help instructors with assessing their instructional goals of their class. The questionnaire is comprised of 53 goals in which an instructor rates the each statement for importance of student accomplishment.

*Table 1.*

Teaching Goals Inventory (1993, p. 3)

- 1) Not applicable  
  a goal you never try to achieve
- 2) Unimportant  
  a goal you rarely try to achieve
- 3) Important  
  a goal you sometimes try to achieve
- 4) Very Important  
  a goal you often try to achieve
- 5) Essential  
  a goal you always/nearly always try to achieve

The assessment generates immediate results which identify the instructor’s primary role in the class. Results from 2,800 faculty members from other 15 community colleges and 17 private four year colleges are provided in a table for instructors to compare their results (Angelo & Cross, 1993). In addition, an instructor can view the goals for which she or he has rated as “essential”, “very important”, “important”, unimportant’, or “not applicable”.
Qualitative Techniques and Instruments

Assessments should be formatted in an essay style in order to fully assess a student’s learning (McFarlane, 2003). Formative and summative assessments are two assessment tools that were used by the Courseware for History Implementation Consortium (CHIC) project study (Hall, 2002). The formative assessment provided feedback of online and group assignments from the students and tutors; students were able to assess their progress and understanding (Hall, 2002). A case study and portfolio were used for the summative assessment, whereas other assessments of the CHIC project included pre- and post- questionnaires, interviews, focus groups, and project reports (Hall, 2002).

The learning outcome will reflect teaching effectiveness when learners are able to explain what they have learned and understand the course objectives. The hierarchy of understanding in Bloom’s (2002) Taxonomy model consists of “knowledge, comprehension, application, analysis, synthesis, and evaluation” (Hall, 2002, p.151). A student’s ability to have a deep understanding of material presented depends on the curriculum design (Hall, 2002). The objectives should be measurable. Objectives should be clear and the activities and teaching should reflect those objectives. When measuring student achievement, cost effectiveness, grades, attitudes, and job performance, distance learning classes are as effective as traditional lecture classes (Eastman & Swift, 2001). “Aligning learning, teaching and assessment demands consistency in producing course objectives, learning activities and outcomes, and in providing a teaching process to support the students” (Hall, 2002, p.152).
Web-based classes are suited for all class sizes; an instructor can post notes and assignments to the entire class. Communication on discussion boards is equal among students. Interactivity, communication, and collaboration are increased through Internet activity (Schrum, 1998). Students have an easier time keeping track of their progress and grades when taking online classes. Discussions, exams, weekly discussions, and written papers can provide an instructor with different ways of evaluating students’ learning (Vrasidas & McIssac, 2000). A class syllabus, class notes, and presentation slides from a traditional class can be formatted and offered to online students.

Previous research efforts have used quantitative methods for comparing variables such as learning outcomes of face-to-face versus online classes. Typically, tests scores, attrition rates and retention rates have been statistically compared with quantitative techniques in assessing students’ learning (Mannan, 2003). In her doctoral dissertation, Mannan (2003) notes the flaws of true control groups, inappropriate measurement tools, and lack of control of unrelated variables in quantitative studies. She further states that “research should also strive for deeper understanding and insights” (Mannan, 2003, p. 18). Researchers from University of Illinois suggest that online learning and teaching research studies should focus on teaching style, student engagement and interaction, and community building rather than generating significant differences and correlations of learning outcomes through quantitative techniques (Mannan, 2003).

Instruments used in research efforts. Various instruments are available for instructors to assess their students’ learning styles. Researchers suggest that knowing students’ learning styles can contribute to learning outcomes (Heffler, 2001). Hengstler and O’Neill (2002) observed that all learning styles surveys are accessible online, but use
only a text-based assessment in identifying learning styles. This type of assessment does not accommodate auditory or kinesthetic learners. The learning styles surveys that were most frequently used in the literature will be reviewed.

Kolb (1984) created a learning style inventory (LSI) which relates learning style to experience (as cited in Heffler, 2001). Kolb’s LSI is based on experience learning theory in which learning is a four stage cycle: concrete experience, reflective observation, abstract conceptualization, and active experimentation (Heffler, 2001). The learning will alternate between each cycle during the learning process. Kolb’s LSI has nine questions which consist of four rank-order words. The individual arranges the word according to her or his learning style, and four learning styles are identified: diverger (understands people and is creative), assimilator (defines problems, possess inductive reasoning), converger (makes decisions, applies practical application of ideas), and accommodator (risk taker, acts on feelings) (Heffler, 2001).

The Gregorc Styles Delineator (GSD) uses random processing with random data to determine one of four learning styles (Bokoro & Golsdtein, 1992). Some researchers have compared Gregorc’s model with the Myers-Briggs Type Indicator (MBTI) (Bokoro & Golsdtein, 1992). The GSD consists of ten sets of four words which are rank-ordered. The Myers-Briggs Type Indicator categorizes an individual into 4 personality types: extrovert or introvert (how people are energized) ; sensing or intuition (how a person obtains and organizes information); thinker or feeler (how an individual bases a decision on logic and analyzes cause and effect); and judging or perceiving (how an individual approaches life) (Vincent & Ross, 2001). The personality type is combined into four of the eight preferences.
Dunn, Dunn, and Price (1981) also created a learning style inventory (LSI), which posits that learning styles are biological and developmental sets of characteristics that make methods, resources, and identical environments (as cited in Greb, & Coté-Bonanno, 2003). Accordingly, this may be effective for some learners and ineffective for other learners. The Dunn and Dunn LSI model includes five stimuli groups: physiological, emotional, sociological, environmental, and psychological, which are further subdivided into twenty categories or elements. The instrument consists of 100 questions that extract self-diagnostic responses in twenty discrete learning-style elements (Greb, & Coté-Bonanno, 2003).

McCarthy’s (1990) 4MAT model bases an individual’s learning styles according to how information is received and processed (as cited in Hengstler & O’Neill, 2002). McCarthy’s model is based on Kolb’s LSI; learners are categorized into four learning styles: innovative (works cooperatively and socializes well with others); analytic (requires facts in order to process information, and is a reflective thinker); common sense (likes to learn ‘first hand’, kinesthetic, problem solver); dynamic (intuitive and self-directed learner).

Lastly, Maggie McVay’s Learning Style Survey provides 60 statements in which an individual chooses answers of “most of the time”, “sometimes” or “rarely” to describe what best fits her or his learning style (McVay, 2000). The Learning Style Survey was developed due to students’ lack of direction in an online environment, and lack of interaction between individual students and between students and the instructor; thus students’ preparedness was affected due to feelings of isolation and lack of support. McVay also feels that technology and experience may affect a student’s ability to learn in
an online environment. Further, if an instructor is aware of the different learning styles of her students, then she will be able to accommodate their learning by providing a variety of assignments in an online course. In addition, students’ acknowledgement of their dominant learning style will help their motivation and self-direction to learning (McVay, 2000).

McVay (2000) originally created the Learning Styles Survey as part of an online orientation in order for students prior to taking an online class. The orientation helped students adjust to the new technology. The survey was also used to measure outcomes.

Conclusion

Adult learners may be best suited for success in an online learning environment. Learning should be learner-centered; however, each learner may have a different style and the course should be structured with a variety of delivery methods. Technology can be developed to meet the cultural backgrounds, interests, academic goals, and learning styles of adults (Huang, 2002). If adult learners take control of the learning process, and combined learning is required, then individual differences will be difficult to distinguish. Students’ understanding of information, rather than memorizing, should be stressed in order to create an effective learning environment (MacDonald & Twining, 2002).

The learner has a need to know why learning is important and how it will take place. The learner has to establish a purpose for learning and have control of the techniques. An individual’s previous experiences will affect how they will learn; new techniques should be presented in order to avoid any biases from their past. The adult has to be ready to learn; this readiness occurs when the need to learn is created by life situations. Adults have a preference to problem solve in their orientation to learning,
especially when they can relate to the presented material. Adults will be motivated to learn when they can apply what they learn into their lives. Online learning can fulfill Knowles’ et al. theory of androgogy and the social constructivist theory if the facilitator creates a learning environment in which adults can master the technology and the material is presented in an interesting manner. Interaction, in the form of online discussions in chat rooms or newsgroups, will get learners more involved and further support learning.

Learners will manage their learning more effectively if they know their learning style (Vincent & Ross, 2001). Bruner (1966) suggested modifying instruction to the nature of the learner through action, symbols, and icons (as cited in Liaw, 2001). Deal (2004) stressed that the technological learning environment is more motivating for the student due to the different dimensions available. Technology is a perfect path for the facilitation of self-direction of students (Fidishun, 2002); it can provide an environment for new forms of learning (Schrum, 1998). Technology can encourage learners to work together, ask questions, and share ideas. Hall and Laurillard (2002) observed that technology in education is used effectively through discussion, interaction, adaptation and reflection. Learners need to share with one another what they have learned. Technology only provides students with information. Unlike technology, learning is more than receiving and storing information (Moller et al., 2002). Information becomes knowledge when the student is able to apply the information in life.
Chapter Three: Methods

Purpose

The purpose of this case study will be to understand how students learn in an online environment according to their learning styles, and by applying various learning theories and delivery methods of information for students enrolled in a community college freshman level online health education class.

In order to understand the impact of learning styles in online learners, the following will be considered: (a) self-evaluation of learning styles in students, (b) utilizing the social constructivist and behaviorist theories in the virtual classroom, (c) student learning behaviors, (d) student technological skill level, (d) interaction between students and the instructor, (e) student interactions with each other, and (f) students’ evaluation of their learning experience. At this stage in the research, learning styles in online students will be generally defined as auditory, visual or kinesthetic.

Research Questions

1. What will be the dominant learning style (visual, auditory, or kinesthetic) used most frequently by students in an online health education class at a Southern California community college?

2. Which learning style will contribute most to a student’s learning in an online health education class?

   - What learning theories will be employed in the virtual classroom of students enrolled in a freshmen level community college online health education class?
• What will be the delivery methods of materials in an online class at a Southern California community college?
• What influence do interactions have on learning in an online environment?
• What is the instructor’s role in accommodating students’ learning styles and facilitating students’ learning?

**Analysis Population and Data Collection**

The study analysis unit will be a Southern California community college student. The population will be fifty students who are currently enrolled in a health education online class at a Southern California Community College. Forty-five students will be surveyed; twenty students are expected to complete research assessments (interviews, assessments, journal entries, and course evaluation).

McVay’s (2000) Learning Style Survey will be taken on a volunteer basis and results will be posted. Demographics on age, gender, ethnicity, and years of college and online classes will also be asked in a separate questionnaire, the Technology Skill Self-Assessment (Appendix A). Participation in the study is voluntary, so the sample will not be randomly selected. Survey results will be confidential.

**Data collection plan.** The online class will take place in a Blackboard course management system provided by the textbook publisher. The students will attend a mandatory face-to-face orientation at the beginning of the semester. During the orientation, the instructor will explain the online health education course objectives, the course syllabus and assignment due dates, e-mail formatting, directions for self-registration into the class, and study techniques for success in passing the class.
A group e-mail will be sent to all of the students in the online class for recruiting volunteers to participate in the study. There will be an element of self-selection inherent in the sample selection, as respondents will be asked in advance of conducting the research if they are willing to participate in the study. To lessen potential bias, they will not be told the specific nature of the investigation; however they will be given a general overview of the process for data collection, and given an informed consent form to sign (Appendix C).

The selected students will be interviewed either asynchronously through e-mail, or synchronously in a chat room. The students will then be asked to take McVay’s (2000) Learning Style Survey online and copy and paste their results into an email to the instructor. They will also be given the Technology Self-Assessment Survey, which will be posted on http://www.Surveymonkey.com. Results of the Technology Self-Assessment Survey will be anonymous. The students will also be asked to submit journal entries reflecting their personal experiences in the class and their interactions with other students and the instructor.

An in-depth illustration of the study will be formed by using electronic documents; archival records, such as discussion board responses and journal entries; and direct observations from students and the researcher. The data collection portion of the study will span nine weeks. The researcher’s observation of delivering an online class in a combination of behaviorist and constructivist models of teaching will also be recorded. The students’ Learning Style Survey results and student’s self-described learning as kinesthetic, visual, or auditory learner will be followed by a post-survey of their
experience at the end of the class to observe the learner’s progress, as well as a class evaluation.

In addition, the instructor will self-evaluate her teaching goals by taking Angelo and Cross’ (1993) Teaching Goals Inventory (Appendix E). This assessment will help the instructor become more aware of accomplishments she will like to see from her students, identify techniques for learning goals, and to share her teaching and learning goals with other instructors.

Sample population. The sample for this study will be drawn from students enrolled in a general health education online class. A freshman level course was selected for the study due to the broad nature of the content and an entry-level college course. An assumption of this study is that a health course will lend itself equally well to both a behaviorist and social constructivist learning model. The course content will be broad enough to include some general theory, verbal/writing exercises, and group projects.

Creswell’s (1998) model for data collection will be used to answer the research questions previously stated. He views the data collected as being interrelated activities as illustrated in Figure 1 below (Creswell, 1998, p. 110).

![Figure 1. Creswell’s (1998) Data Collection Activities](image-url)
Creswell further suggests that establishing a good rapport with students will help to provide good data. Effective leadership will be essential in developing rapport with each student. The researcher will determine a strategy for purposeful sampling so that the problems can be best studied (Creswell, 1998). E-mail messages of online interviews, individual online journals of the student’s experience in the health education class, results of the pre- and post-technical skill and self-assessment surveys (Appendix A), McVay’s (2000) Learning Style Survey (Appendix B), and live chat sessions with students will be used as part of the data collection. The online interview will consist of five open-ended questions with ample space for students to write (Appendix D). An electronic portfolio for each student will also be developed for storing the information. Written forms will then be generated for recording information from all of the students in the study and for the researcher’s observations. Exams will not be considered when evaluating the student’s learning outcomes.

The researcher’s social relationship with students in the study will also be as the instructor of the health education online class. The researcher will record her own experience in the online class. All information will be stored in an electronic data collection file.

**Human Subjects Research**

In order to protect the rights and welfare of the human subjects used in this study, an Institutional Review Board (IRB) application will be expedited and submitted through Pepperdine University. The IRB proposal will contain: procedures in the study, a syllabus of the online class, a description of how to inform the subjects of the study, statement of minimize risk and confidentiality statement that subjects’ grades will not be affected by
the research, and confirmation that the student is at least 18 years of age. The informed consent to participate form (Appendix C) will be modeled after Creswell’s (1998, p. 116) informed consent form, and will include the following:

- The student’s right to withdraw from the study at any time.
- Purpose of the study and procedures to be used in data collection.
- Comments about protecting the confidentiality of the students.
- A statement of known risks associated with students’ participation in the study.
- A place for the student to sign and date the form.

The following information will also be submitted in writing to Pepperdine’s IRB, as suggested by Creswell (1998):

- A statement of why the study will take place in the researcher’s health education class.
- A statement of the amount of time that the researcher will spend in the online class (research site).
- A statement of possible disruptions by the researcher’s presence in the online class.
- A statement of how the results will be reported.
- A statement of what the researcher will gain from the study.
McVay’s Learning Style Survey Instrument

Several instruments have been used to determine learning styles. It is beyond the scope of this paper to determine whether one instrument is more effective than another in determining a student’s learning style. Many of the learning style instruments classify learners into 3-6 different learning styles. The researcher will draw conclusions from students’ results of McVay’s Learning Style Survey which categorizes learners into auditory, visual or kinesthetic learners.

The instrument to select and place the students into the study groups will be McVay’s (2000) Learning Styles Survey which consists of sixty questions. The instrument will be used to assess the student’s preferred learning style (visual, auditory, or kinesthetic). In addition to the instructor’s post-survey at the end of the course to determine student’s learning experience, a course evaluation with open ended questions will be designed specifically for this study to evaluate the students’ perceptions regarding the delivery method, the effect of the instructor’s technical delivery of information, and the impact of their fellow classmates’ perceived ability to absorb the course content, will also be administered (Appendix B).

Below is a description of the three learning styles, as described by McVay (2000, p.5):
Table 2.

McVay’s Learning Style Survey (2000)

<table>
<thead>
<tr>
<th>Learning Style</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual Learner</td>
<td>This individual will probably have the easiest time adapting to online instruction. However, this individual may still need additional assistance. This individual may enjoy developing charts, maps, notes, and flashcards as this she or he studies. Putting your thoughts on paper will also enhance an individual’s visual memory. Writing out questions, answers, and discussions will give this individual frequent, and quick visual reviews. This individual should practice visualizing or picturing words/concepts in her or his head.</td>
</tr>
<tr>
<td>Auditory Learner</td>
<td>This individual may wish to use tapes. As this individual reads something, she or he should say it aloud and tape the reading then play it back for studying. Because online learning is very visual, this individual will need to work harder to bring that medium into your auditory style by talking with others. Any time an online course offers an opportunity for sound, be sure to take advantage of that option. If this preference is very high, this individual might consider purchasing a voice recognition software package, which will read the words from your screen. Unfortunately, current technology makes the voice sound very mechanical, but it can still be a wonderful adaptation for those who are primarily auditory learners.</td>
</tr>
<tr>
<td>Kinesthetic Learner</td>
<td>This individual will have the most difficulty in the online environment, and will need to work to bring visual stimuli into a kinesthetic reality. Words should be traced as this individual is saying them or point to them as this individual reads. Writing facts and concepts down several times will help this individual retain the information. The motion of writing helps translate concepts in her or his mind. Keep a supply of scratch paper near this individual and always take notes as he or she reads, listen, or watch presentations. Make study sheets. Most importantly, this individual should develop ways to apply learning to a tactile world</td>
</tr>
</tbody>
</table>
Validity and Reliability

A qualitative case study will be chosen due to its application in education and the ability to understand social interactions between individuals (Mannan, 2003). A case study is a useful method for evaluating learning styles of students and their learning experience in an online environment.

This study will be designed to present a balanced and focused collection of data that could be interpreted with reasonable certainty and still have some useful application to the overall population from which the sample was taken.

1. An introductory online health education class will be selected with the intent to focus on student’s learning across several content types (visual, auditory, and kinesthetic).

2. The introductory online health education class will provide latitude and flexibility in the application of the learning theories applied.

3. The class will integrate a combination of learning theories.

4. Students will be enrolled in an online introductory health education class in a Southern California community college.

The external validity of this study will rely on the breadth of the population of students enrolled in the selected community college. Although this study could best be applied to the effectiveness of various learning theories in other freshman level online courses, conclusions will be drawn regarding the learning theories as they were used with the various types of content; verbal, written and the analytical portions of the online health course.
The researcher will use triangulation for validity and reliability (Creswell, 1998). Klinger (2003) further suggests using member checks to see if students agree with the results of their Learning Style Survey, in addition to summarizing the results of their interviews and observations. Further, the researcher will share results with peers in order to see if they agree with the conclusions (Klinger, 2003).

**Limitations of Qualitative Research**

The following are a few of the observed limitations:

1. It is important for the reader to note that this will be a qualitative study and cannot be generalized in a statistical manner.

2. The data collected from the students will be compared qualitatively.

3. The course design will be manipulated to more strongly emphasize student learning styles.

4. This study will observe a small group of students, one class, and one instructor; the sample course or students will not be randomly selected.

5. Observations that will be made in this research cannot be applied to students in other online classes.

6. The online health education class is a required course for a two year associate degree or transferable to a four year institution.

**Data Analysis**

In her doctoral dissertation, Klingner (2003) used categorical aggregation, direct interpretation, patterns, and naturalistic generalizations in analyzing her qualitative study,
as suggested by Creswell (1998). Categorical aggregation will be used to determine or discover any common themes in the data. Direct interpretation will be used to infer the significance from each individual case. Data collected from the students in the sample will be compared to see if any patterns emerge. Finally, conclusions will be drawn from the researcher’s interpretation of the data, and naturalistic generalizations will be developed.
References


Murphrey, T. (2001, Jan/Feb). Using the power of technology to enhance online learning anytime, anywhere, anyhow; are we asking the right questions? *The Agricultural Education Magazine, 73*.


Technology Skill Self-Assessment – STUDENT

Thank you for taking the time to fill out this survey.

This information is strictly confidential and anonymous, and will be used only as a data collection tool for my dissertation.

1. What is your age?
- Under 17
- 18 – 25
- 26 – 35
- 36 - 45
- 46 - 55
- Over 56

2. What is the highest educational level you have achieved?
- High School Diploma
- Bachelor’s Degree
- Master’s Degree
- Doctorate Degree
- Other, please specify ____________________

3. What is your gender?
- Female
- Male

4. What is your ethnicity?
- African/African American/Black
- Asian/Pacific Islander
- Latina/Latino
- Native/Aboriginal
- White/European
- Mixed/Multi
- Middle Eastern/North African

5. How would you rate your skills using email?
- never used it
- novice
- adequate
- advanced
- expert

6. How would you rate your skills using online chatting?
- never used it
- novice
- adequate
- advanced
- expert

7. How would you rate your skills using a web browser?
- never used it
- novice
- adequate
- advanced
- expert

8. How would you rate your skills downloading or transferring files?
- never used it
- novice
- adequate
- advanced
- expert

9. How would you rate your skills using word processing software?
- never used it
- novice
- adequate
- advanced
- expert

10. Overall, how would you rate your overall skills using technology?
- never used it
- novice
- adequate
- advanced
- expert
Learning Style Survey


After each statement, click on the button that best matches your situation. Remember: There are no right or wrong answers. Because most people learn through a mixture of all three styles, it is not unusual to have answers reflecting each of the styles. When this individual have completed the survey, click the "submit" button at the bottom of the screen.

<table>
<thead>
<tr>
<th></th>
<th>Most of the time</th>
<th>Sometimes</th>
<th>Rarely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>If I have to learn how to do something, I learn best when I watch someone show me how.</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>2</td>
<td>When I read, I often find that I read out loud or hear the words inside my head.</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>3</td>
<td>I can understand and follow directions on maps.</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>4</td>
<td>I prefer to write with a pen or pencil, so I can feel the flow of the words or letters as I make them.</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>5</td>
<td>I would rather tell how something works than write how it works.</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>6</td>
<td>I prefer to use posters, models, or actual practice with some activities in class.</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>7</td>
<td>If I had to remember a list of items, I would remember it</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
</tbody>
</table>
Learning Styles in an Online Environment

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>When trying to concentrate, I have a difficult time when there is a lot of clutter in the room.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>When asked to give directions, I have to point or move my body as I give them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>When learning, I prefer information to be written on the board along with visual aids and assigned readings.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>If I am unsure how to spell a word, I spell it out loud in order to determine if it sounds right.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>I prefer teachers who assign hands-on activities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>When trying to remember someone, I recall their face but forget their name.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>To keep occupied while waiting for half an hour, I walk around or move my feet and legs as I sit.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>If I had to describe a concept to someone else, I would go into great detail and talk at length.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>I can remember more about a subject through the lecture method with information, explanations and discussion.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>I am good at doing jigsaw puzzles.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>I do math by counting on my</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>Statement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I can better understand a news item by reading about it in the paper than by hearing it on the radio.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I enjoy working with my hands or making things.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>When solving a problem, I write or draw diagrams to see it.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>When trying to concentrate, I have a difficult time when there is a lot of noise in the room.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>When asked to give directions, I have no difficulty in giving them verbally.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>If I had to remember a list of items, I would remember it best if I used my fingers to name each item.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>When I read, I often find that I can picture what I am reading in my imagination.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>I play with coins or keys in my pocket.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>I learn to spell better by repeating the words out loud than by writing them on paper.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>When given written</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instruction</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>instructions on how to build something, I try to put the parts together first and then read later if I get into trouble</td>
<td>29 When trying to remember someone, I recall the name, but forget their face.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If someone tried to give me verbal directions, I would try to visualize what she was saying or draw a map as she spoke.</td>
<td>30 When trying to remember someone, I recall the name, but forget their face.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If someone tried to give me verbal directions, I would try to visualize what she was saying or draw a map as she spoke.</td>
<td>30 When trying to remember someone, I recall the name, but forget their face.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If I have to learn something new, I learn best when I try to do it myself first.</td>
<td>31 When solving a problem, I talk myself through it.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When I write, I am concerned how neat and well designed my paper is.</td>
<td>32 If I have to learn something new, I learn best when I try to do it myself first.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I easily recognize a tune when I hear it again.</td>
<td>34 I easily recognize a tune when I hear it again.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I do better at academic subjects by listening to lectures and tapes.</td>
<td>35 I do better at academic subjects by listening to lectures and tapes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I obtain information on a subject by reading relevant materials.</td>
<td>36 I obtain information on a subject by reading relevant materials.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>While talking on the phone, I use gestures and move around.</td>
<td>37 While talking on the phone, I use gestures and move around.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To keep occupied while waiting half an hour, I talk or listen to others.</td>
<td>38 To keep occupied while waiting half an hour, I talk or listen to others.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When trying to remember someone, I recall the situation in which I met the</td>
<td>39 When trying to remember someone, I recall the situation in which I met the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>When solving a problem, I use my entire body or move objects around to help me think.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>When given written instructions on how to build something, I read them silently and try to visualize how the parts will fit together.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>If I have to learn something new, I learn best when I hear someone tell me how to do it.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>If I had to remember a list of items, I would remember best if I wrote them down.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>I prefer teachers who talk with a lot of expression.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>When asked to give directions, I see the actual places in my mind as I saw them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>If I am unsure how to spell a word, I write it in order to determine if it feels right.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>To keep occupied while waiting half an hour, I look around, stare, or read.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>If someone were verbally describing a concept to me, I would become bored if the description became too detailed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>When I write, I say the word or sentences to myself.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>When trying to concentrate, I have a difficult time when I have to sit still for any length of time.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>If I am unsure how to spell a word, I write it in order to see if it looks right.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>I like to outline my school work.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>I speak better than I write.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>----------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>When given written instructions on how to build something, I read them out loud and talk to myself as I put the parts together.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>I remember best by writing things down several times.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>I chew gum, smoke, or snack during studies.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>I prefer listening to the news on the radio rather than reading about it in the newspaper.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>I feel comfortable touching others, hugging, handshaking, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>If I had to describe a concept to another person, I would draw a model or chart to get my point across.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>I write better than I speak.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix C

Informed Consent

The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that you are free to decide not to participate or to withdraw at any time without affecting your relationship with the instructor, the health education class, Cerritos College, or your grade.

The purpose of this study is to understand the process of understanding your learning styles in an online community college-level course. The procedure will be for you to sign and date this form, and provide your results to the instructor after taking the Learning Style Survey online. **You must be at least 18 years of age to participate in the study.**

Data will be collected at three points—at the beginning of the course, at the midpoint, and the end of nine weeks. Data collection will involve documents (journal entries made by students and the instructor, student evaluations of the course and the research procedure), online interviews with the instructor (either via email or in a chat room) or between students (observed on the discussion board), and online classroom observation field notes (made by students and the instructor). Individuals involved in the data collection will be the instructor and the students in the course.

Do not hesitate to ask any questions about the study either before participating or during the time that you are participating. I would be happy to share my findings with you after the research is completed. However, your name will not be associated with the research findings in any way, and your identity as a participant will be known only to the researcher.

There are no known and/or discomforts associated with this study.

The experience benefits associated with your participation are the information about the experiences in learning about your dominant learning style, the opportunity to participate in a learning style research study, and co-authorship for those students who participate in the detailed analysis of the data. If submitted for publication, a byline will indicate the participation of all students in the course.

Please sign your consent with full knowledge of the nature and purpose of the procedures. A copy of this consent form will be given to you to keep.

____________________________________________  ____________________
Signature of Participant                           Date

Ni Bueno, M.S., Pepperdine University, Principal Investigator
Appendix D
Online Interview Questions

Project: Education Online is More Than Technology

Time of interview:

Date:

Place:

Interviewer:

Interviewee:

Position of interviewee

The project will help the student determine her or his dominant learning style in a health education online class, and how the learning style may contribute to the student’s learning experience.

Questions:

1. Is this your first online class?

2. What is your reason for taking the online health education class?

3. What do you hope to get out of the online health education class?

4. What is your comfort level in communicating in an online environment? What is your preferred method of communicating online and why?

5. What is your dominant learning style, and how will this learning style help you in the online health education class?
Appendix E

Teaching Goals Inventory

© 1993 Thomas A. Angelo and K. Patricia Cross.

Source: Classroom Assessment Techniques: A Handbook for College Teachers
Reproduced by permission.

Directions:

Please select ONE course you are currently teaching. Respond to each item on the inventory in relation to that particular course. (Your response might be quite different if you were asked about your overall teaching and learning goals, for example, or the appropriate instructional goals for your discipline.) Rate the importance of each goal to what you aim to have students accomplish in your course.

Please enter the name of the course you are rating

This information is optional. If you enter it, it will be included in your score report.

Please rate the importance of each of the fifty-two goals listed below to the specific course you have selected. Assess each goal's importance to what you deliberately aim to have your students accomplish, rather than the goal's general worthiness or overall importance to your institution's mission. There are no "right" or "wrong" answers; only personally more or less accurate ones. For each goal, choose only one response on the 1-to-5 rating scale. You may want to read quickly through all fifty-two goals before rating their relative importance.

In relation to the course you are focusing on, indicate whether each goal you rate is:

(1) Not applicable a goal you never try to achieve
(2) Unimportant a goal you rarely try to achieve
(3) Important a goal you sometimes try to achieve
(4) Very Important a goal you often try to achieve
(5) Essential a goal you always/nearly always try to achieve

1. Develop ability to apply principles and generalizations already learned to new problems and situations
2. Develop analytic skills
3. Develop problem-solving skills
4. Develop ability to draw reasonable inferences from
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.</td>
<td>Develop ability to synthesize and integrate information and ideas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.</td>
<td>Develop ability to think holistically: to see the whole as well as the parts</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7.</td>
<td>Develop ability to think creatively</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.</td>
<td>Develop ability to distinguish between fact and opinion</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9.</td>
<td>Improve skill at paying attention</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.</td>
<td>Develop ability to concentrate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.</td>
<td>Improve memory skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.</td>
<td>Improve listening skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13.</td>
<td>Improve speaking skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14.</td>
<td>Improve reading skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15.</td>
<td>Improve writing skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16.</td>
<td>Develop appropriate study skills, strategies, and habits</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17.</td>
<td>Improve mathematical skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18.</td>
<td>Learn terms and facts of this subject</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>19.</td>
<td>Learn concepts and theories in this subject</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20.</td>
<td>Develop skill in using materials, tools, and/or technology central to this subject</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21.</td>
<td>Learn to understand perspectives and values of this subject</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22.</td>
<td>Prepare for transfer or graduate study</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>23.</td>
<td>Learn techniques and methods used to gain new knowledge in this subject</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24.</td>
<td>Learn to evaluate methods and materials in this subject</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25.</td>
<td>Learn to appreciate important contributions to this subject</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26.</td>
<td>Develop an appreciation of the liberal arts and sciences</td>
</tr>
</tbody>
</table>
27. Develop an openness to new ideas
28. Develop an informed concern about contemporary social issues
29. Develop a commitment to exercise the rights and responsibilities of citizenship
30. Develop a lifelong love of learning
31. Develop aesthetic appreciation
32. Develop an informed historical perspective
33. Develop an informed understanding of the role of science and technology
34. Develop an informed appreciation of other cultures
35. Develop capacity to make informed ethical choices
36. Develop ability to work productively with others
37. Develop management skills
38. Develop leadership skills
39. Develop a commitment to accurate work
40. Improve ability to follow directions, instructions, and plans
41. Improve ability to organize and use time effectively
42. Develop a commitment to personal achievement
43. Develop ability to perform skillfully
44. Cultivate a sense of responsibility for one's own behavior
45. Improve self-esteem/self-confidence
46. Develop a commitment to one's own values
47. Develop respect for one's own values
48. Cultivate emotional health and well-being
49. Cultivate physical health and well being
50. Cultivate an active commitment to honesty

51. Develop capacity to think for oneself

52. Develop capacity to make wise decisions

53. In general, how do you see your primary role as a teacher? (Although more than one statement may apply, please choose only one.)

- Teaching students facts and principles of the subject matter
- Providing a role model for students
- Helping students develop higher-order thinking skills
- Preparing students for jobs/careers
- Fostering student development and personal growth
- Helping students develop basic learning skills