Chapter 2

Review of the Literature

The purpose of this literature review is to discuss the history, technology, theory and best practices of distance education, and online education (subset of distance education), as they relate to the background, design and interpretation of this study.

Brief History of Distance Education

Distance education has its roots in correspondence education, which began in Great Britain, Germany, France and the United States in the mid-nineteenth century ("Correspondence Education," 2007). One of the first well known correspondence programs was started in 1840 by Isaac Pitman of England. Pitman had developed a new method of shorthand based on phonetics and used the newly established penny postage system to correspond with his students via postal mail. The shorthand lessons were formatted to fit onto a postcard and students were given exercises to complete and return via mail. In 1843, the Phonographic Correspondence Society was instituted to handle the tasks of correcting the assignments and this society would later become the Sir Isaac Pitman Correspondence Colleges (Holmberg, 1986).

One of the first American correspondence programs of note was the Society to Encourage Studies at Home (1873 to 1897), founded by Anna Eliot Ticknor. This endeavor was inspired by an existing British program, the Society for the Encouragement of Home Study, with three significant differences: It was for women only, it required regular correspondence, and it prohibited public examinations (Bergmann, 2001). Ticknor, a well educated Boston lady whose father was a Harvard

professor, was active in woman's group volunteerism. She readily enlisted the help of likeminded friends to develop this new Society to provide women at home with access to liberal education. Courses were offered in the subjects of History, Natural Science, Art, German Literature, French Literature, and English Literature, with history being the most popular and science being the least popular. Students were charged a nominal fee ($2 to $3) which covered the cost of printing and postage. The only prerequisite was to be at least 17 years old. Women were encouraged to study at their own pace each day as their schedules permitted and instructed in how to learn the material and complete the assignments. The primary purpose of this society was to provide access to higher education to women who could not attend a women's college and/or wanted to pursue their education from home. Through the vision and leadership of Anna Ticknor, and the volunteer services of many hundreds of mail tutoring correspondents, over seven thousand woman pursued higher education from their own homes during the twenty-four year run of the society (Bergmann, 2001).

William Rainey Harper, the first president of the University of Chicago and an early proponent of the associate's degree (Brint & Karabel, 1989), is known as an early pioneer of correspondence teaching in America (MacKenzie & Christensen, 1971). This accolade stemmed from his pioneering work in 1881 to develop a Correspondence School of Hebrew that was also offered through the Chautauqua University (D. R. Garrison, 1989). In the late nineteenth century, Harper instituted a university extension with correspondence programs and a, "Department of Home-Study that was an integral part of the university, through which students could take as much as one-third of the

coursework required for a bachelor's degree through correspondence" (Larreamendy-Joerns & Leinhardt, 2006, p. 574). Harper believed the university was obligated to further the ideals of democracy and equality in society and this was reflected in a University publication describing the goal of correspondence studies, "to provide instruction for those who, for social and economic reasons, cannot attend in its classrooms…" (p. 575). Very soon after the University of Chicago got its start with correspondence studies, the University of Wisconsin followed suit with providing their own correspondence studies program. They embraced Harper's democratic ideals of providing equal access to higher education, "Extramural teaching in the university answers to the social present-day demand for a share in the intellectual and spiritual pleasures and the material benefits… This is the demand for the opportunity to know—educational rights" (p. 575). These institutional vanguards of distance education, considered correspondence studies to be a vehicle of democracy in providing educational access to a more diverse student population.

The field of "Correspondence Education" would eventually become known as "Distance Education"—a more general description in which mail correspondence would be one of many possible communication methods. This new terminology was formally recognized in 1982 by the International Council for Correspondence Education when it changed its name to the International Council for *Distance* Education (Holmberg, 1986). Prior to adopting the term distance education, the term correspondence education, which emphasizes the delivery mode (postal service), was also referred to as *home*

study, which emphasizes location, and *independent* study, which emphasizes individualization (D. R. Garrison, 1989).

Definition

So what is meant by this new term, distance education? There are many facets to consider for developing a definition of distance education: Separation of teacher and student, method of communication, method of instruction, self-paced, course-paced, academic, vocational, examinations, no examinations, incorporated into the university, extension of the university, access, equality, democracy, etc. Also, as new technologies have enabled new forms of communication and interaction—how have these influenced the meaning of distance education? As one might expect, there is not a single definition for distance education. Instead, there are several definitions and descriptions that have evolved, and continue to evolve (Rumble, 1989):

1. *Distance teaching may be defined as the family of instructional methods in which the teaching behaviors are executed apart form the learning behaviors, including those that in a contiguous situation would be performed in the learner's presence, so that communication between the teacher and the learner must be facilitated by print, electronic, mechanical or other devices.* (M. G. Moore, 1973, p. 664) The emphasis of this definition is on the interaction between the student and the teacher and not upon the distance between them (D. R. Garrison, 1989).
2. *The various forms of study at all levels which are not under the continuous, immediate supervision of tutors present with their students in lecture rooms*

or on the same premises, but which, nevertheless, benefit from the planning, guidance, and tuition of a tutorial organization. (Holmberg, 1977, p. 9) This definition emphasizes the organization as opposed to the teacher, and it does not address the means of communication (D. R. Garrison, 1989).

3. Garrison and Shale defined distance education in terms of meeting three criteria (1987, p. 11):
    a. *Distance education implies that the majority of educational communication between (among) teacher and student(s) occurs noncontiguously.*
    b. *Distance education must involve two-way communication between (among) teacher and student(s) for the purpose of facilitating and supporting the educational process.*
    c. *Distance education uses technology to mediate the necessary two-way communication.*

Michael Graham Moore, a contemporary leader in the field of distance education, and the founding editor of The American Journal of Distance Education, has condensed the definition of distance education to the following, “all forms of education in which all or most of the teaching is conducted in a different space than the learning, with the effect that all or most of the communication between teachers and learners is through communication technology” (M. G. Moore & Anderson, 2003, p. xiv). This definition is similar to the one used by the California Community College system, “Instruction in which the instructor and student are separated by distance and interact through the

assistance of communication technology" (Mora, 2004, p. 31). Furthermore, in order for a course to be assigned a distance education code in California community colleges, it must utilize technology 51% or more of the time to deliver instruction during the course term (Mora, 2004). For the sake of this study, I will use the California Community College system definition.

Communication Technologies

Over the course of the twentieth century, many new communication technologies have been invented, popularized and mass produced. These technologies have all been utilized by distance educators—Radio, telephone, television, audiotape, cable TV, satellite TV, videotape, video-disks, computer/modem, Internet, Ethernet, audio-conferencing, video-conferencing, compact discs, multimedia, web course tools, Internet2, home broadband, wireless, DVDs, podcasts, digital video, social networking, YouTube, etc. The utilization of these technologies as delivery methods for distance education was organized chronologically, according to generations: First through fifth generation (Taylor, 2001). These are summarized in Table 2.

Table 1

Generational Delivery Methods for Distance Education

Distance Education	Delivery Method	Characteristics
First Generation: Correspondence Model	Print and postal services	Flexible time, place and pace. Ongoing costs.
Second Generation: Multimedia Model	Print, audiotape, videotape, computer-based learning, interactive video disks/tapes	Flexible time, place and pace. Ongoing costs.

Third Generation: Telelearning Model	Audioteleconferencing, videoconferencing, audiographic communication, broadcast TV/radio plus audioteleconferencing	*Non*-flexible time, place and pace. Relatively expensive with ongoing costs.
Fourth Generation: Flexible Learning Model	Interactive multimedia (IMM) online, Internet-based access to the Web, computer mediated communication (CMC)	Flexible time, place and pace. Relatively expensive to start then costs approach zero.
Fifth Generation: Intelligent Flexible Learning Model	IMM online, Internet-based access to the Web, CMC using automated response systems, campus portal access to institutional resources	Flexible time, place and pace. Relatively expensive to start then costs approach zero.

At Diablo Valley College, we are using fourth generation delivery methods for students and teachers to interact asynchronously via the Internet. We are using fifth generation technologies for online registration and partial access to personalized information resources (e.g., transcripts, financial aid status, etc.).

Generational Students

As technologies can be described by generations, there is a body of literature that characterizes the values, attitudes, and experiences of the American population according to generations defined by year of birth. These are typically referred to as the Mature Generation (~1924-1945), Baby Boomers (~1946-64), Generation X (~1965-1980), Millennials/Generation Y (~1981-2000), and Generation Z (~2001-present), but the exact labels and time-spans are not irrefutable (Reeves & Oh, 2008). Part of what characterizes the values and attitudes of the generations are the major events and/or major technologies of their times. For example, the Boomers are characterized as the

large group of people who were born in the years following World War II. Some major events of this generation relate to economic growth, population movement to suburbs, greater access to higher education, women in the workplace, space race, arms race, civil rights movement, etc. The Boomers went from black and white television to color, from the slide rule to the personal calculator, and eventually, to the personal computer. The Millennials were born into an era of burgeoning digital technologies such as computers, networks, cell phones, etc., thus the Millennials may have different perspectives and behaviors towards digital technologies than Boomers, and to some degree, Generation X. For example, Boomers tend to print documents for reading offline while Millennials tend to read digital content online (no printing).

For particular relevance to education, Marc Prensky divides the ages into two groups: Digital Natives and Digital Immigrants (Prensky, 2001). Digital natives grew up using computer technologies and digital immigrants did not. His thesis is that digital natives have an inherently different view and response to digital technologies than digital immigrants, whose "first language" is non-digital. Consequentially, in schools, Prensky posits there is a large gap between the perspectives and expectations of teachers (digital immigrants), and students (digital natives) and this gap needs to be addressed in order for optimal and relevant learning to occur. At DVC, the average age-range of online instructors is 51 to 60—they are Boomers (digital immigrants). The average age-range of online students is 20 to 24—they are Millennials (digital natives). The digital gap between instructors (immigrants) and students (natives) may partially account for why some students (and instructors) are dissatisfied with online courses.

New generations of communication technologies coupled with new generations of digitally native students would suggest a growing demand for distance education.

Digital Divide

The historical digital divide, between computer haves and have-nots, is not the same issue that it used to be when major segments of the population did not have access to digital technologies, (typically along income, age, gender, ethnic lines). Given the lower cost of computers and the widespread availability of Internet access at homes, schools, libraries, workplaces, etc., *most* everyone that wants access has it (Rainie, 2005). The issue now is not about access, but about *digital diversity* (Mossberger, Tolbert, & Stansbury, 2003)—the quality, quantity and proximity of digital access: Home access versus public, broadband versus dial-up, powerful computer versus weak, high availability versus low, high skill versus low, information competency versus incompetency, etc. For the greater population, digital diversity has implications for democracy and economic opportunity (Fox, 2005; Mossberger et al., 2003; Warschauer, Knobel, & Stone, 2004). At Diablo Valley College, according to a 2005 student survey, 90% of the students rated their computer skills as capable or expert with nearly 70% using broadband and 16% using dial-up to access the Internet from off-campus (Seaberry, 2005). Students also have access at computer labs throughout the campus. There is not a shortage of digital access and diversity for the vast majority of DVC students.

Online Education

Online education is a special case of distance education in which a networked computer is the primary vehicle of communication; It is sometimes referred to as e-learning (Larreamendy-Joerns & Leinhardt, 2006). Larraemaendy-Joerns and Leinhardt state that online education is "an emerging field that lies at the junction of distance education, human-computer interaction, instructional technology and cognitive science" (2006, p. 568). According to the 2005 Sloan-C Report, "Online education has become the leading modality for distance education" (Sloan-C, 2005, p. 8). According to the latest California Community College Distance Education Report, Internet usage surpassed all other modes of delivery in 1999. As of 2005-06, the Internet was used for nearly 80% of all distance education course sessions in California Community Colleges (Nather, 2007).

As reflective of the variety of communication technologies and their applications to distance education, the California Community College Education Code describes 11 different ways to code distance education sessions—three of these codes apply to Internet-based instruction (p. 7-8):

> Code 61 (previously code 60): Text one-way (e.g., newspaper, correspondence, electronic file, Internet, etc.)
>
> Code 71: Simultaneous interaction: Session under supervision of instructor not available by line-of-sight using the Internet with immediate opportunity for exchange between participants.

Code 72: Delayed interaction: Session under supervision of instructor not available by line-of-sight using the Internet without the immediate involvement of the instructor

By far, code 72 is the most widely used delivery method for distance education in the California Community Colleges, and at Diablo Valley College. It is the *asynchronous* mode of Internet access that provides students with the most flexibility (autonomy and independence) in choosing the times and places to access the online course.

Growth of Online Education

As of fall 2005, the vast majority of public colleges and universities offer online programs or courses, with only 9.4% offering no online education (Allen & Seaman, 2006). In 2005, approximately 95% of the California Community Colleges offered distance education courses (Nather, 2005). Since fall 2002, college students have been enrolling in online courses in progressively record numbers, increasing by 18 to 35% each year. As of fall 2005, over 18% of all higher education students were enrolled in one or more online courses. This ratio is even greater for community college students, estimated at 23.1% for fall 2005. In the California Community Colleges, nearly 12% of the study body enrolled in at least one online course for fall 2005 (Nather, 2005). At Diablo Valley College, 11% of students were enrolled in one or more online courses for fall 2005 ("California Community Colleges Chancellor's Office Data Mart," 2007).

Access and Democracy

In concluding this brief history of distance education, I will return to the themes of access and democracy. As noted earlier, two founding pioneers of American distance

education, Anna Ticknor and William Harper, both promoted the democratic ideals of equality and the pursuit of happiness by providing educational access to people who were otherwise unable to participate. These same ideals apply today, in the California Community Colleges, which are open-access colleges for all students who will benefit. There are many people in California who for any number of reasons cannot feasibly attend a campus-based course: Scheduling conflicts with work, family, or other classes; difficulties with childcare, transportation or parking; physical/social disabilities that make it difficult to attend class, etc. These barriers should not keep students from accessing higher education—especially when these barriers are so readily overcome via distance education. This issue was addressed in the latest California Community College System Strategic Plan (Goal A4), "… The Colleges can provide universal access to quality education, and use of technology can bridge gaps that may be caused by income or geographical disparities" (Committee, 2006, p. 26). As educational leaders, it is our ethical responsibility to ensure that all students are provided with access to educational resources (ACCCA, 2002)—distance education is a viable form of access for many students who otherwise could not attend a community college.

Theories of Distance Education

As researchers and scholarly practitioners have struggled to develop a commonly accepted definition of distance education, they have also struggled to develop a commonly accepted theory of distance education. In the twentieth century, this has been somewhat exacerbated by the rapid developments of new communication technologies and the pragmatic focus on implementing each new technology over

prioritizing the development of theory (Saba, 2003). But, one thing that is generally agreed upon among the distance education community, is the centrality of the *learner* to the distance education process, and "understanding this fact is essential for discerning why it is essentially different from other forms of education" (Saba, 2003, p. 4). With respect to the learner, as summarized by a leading theorist in the field, Michael Moore, the four large areas of distance education theory for today are related to (a) transactional distance, (b) interaction, (c) control, and (d) social context (Hill, Wiley, Nelson, & Han, 2004). According to Moore (1991), distance education theory provides a common language for organizing knowledge, revealing patterns and relationships, revealing gaps in knowledge, guiding principal-based decision-making, and increasing future problem solving abilities. As a subset of education, many aspects of adult learning theories and general education theories are applicable to distance/online education theory (Ally, 2004; T. Anderson, 2004; Chickering & Ehrmann, 1996; Holmberg, 1986; M. G. Moore & Anderson, 2003; Rossman, 2000). The remainder of this section will discuss the primary distance education theories and their application to this study.

Transactional Distance

Transactional distance is a pedagogical theory that applies to distance education as well as the traditional classroom; it was first introduced by Michael Moore in 1972 to explain the effect of distance upon learning and instruction (Hill et al., 2004). "It is a distance of understandings and perceptions, caused in part by the geographic distance, that has to be overcome by teachers, learners and educational organizations if effective, deliberate, planned learning is to occur" (M. G. Moore, 1991, p. 2). Moore derived the

concept of transaction from John Dewey and applied it to the interplay between the teacher, learner and distance education context (M. G. Moore, 1991). The theory of transactional distance originally had two discrete variables that have since been modified as two *continuous* sets of variables: Dialog and structure. Dialog is primarily the interaction between the learner and teacher. Structure is primarily the interaction between the learners and teacher-provided content. Dialog is potentially more fluid, however mediated by communication technologies, while structure is potentially more fixed as determined by course materials and delivery methods. Online communication technologies are readily useful for improving and expanding dialog options (e.g., email, chat, discussion, audio-conference, video-conference, etc.)—this is in stark contrast to the limitations of correspondence studies through postal mail. As the effectiveness of dialog increases, transactional distance decreases. As the course structure becomes more flexible, transactional distance decreases. Current instructional technologies provide for options that range from highly structured one-way video productions to highly available learning objects such as MERLOT—Multimedia Educational Resource for Learning and Online Teaching (www.merlot.org). Highly structured content, if not coupled with sufficient dialog, can increase the transactional distance between the learner and instructor. However, the optimal amount/type of dialog and structure depends on a myriad of factors related to the program, course, instructor, student, subject, learning objectives, difficulty level, learning styles, etc., (M. G. Moore, 1991).

The main point of the transactional distance theory is to understand that dialog and structure have a significant impact upon the educational process of students and

teachers—moreso for distance education than traditional education—and these variable sets can provide a basis for designing, conducting and evaluating online courses in order to decrease transactional distance and increase student effectiveness. For this study, transactional distance theory explains the importance of instructor feedback and course structure for a student's satisfaction and success.

Interaction

The theory of *interaction* was first developed by Michael Moore to describe the delineation of three distinct types of learner interactions in distance education: Learner to content, learner to instructor, and learner to learner (M. G. Moore, 1989). These interactions are unique and overlapping and help to explain the dynamics of distance education as they are mediated through technologies (D. R. Garrison, 1989). Learner-to-content interactions focus on the process of the learner interacting with the subject matter to develop new understandings of the content. For online education, such content may be in the form of web pages, web applications, web videos, library databases, electronic textbooks, etc. The structure of the course content is determined by the instructor (or institution) according to the subject, level, objectives, etc., and this relates to the *structure* elements of the transactional distance theory. The learner to instructor interaction relates to the *dialog* elements of the transactional distance theory. This interaction provides feedback, motivation and support to the students (Hill et al., 2004). The learner to learner interaction involves dialog among class mates for the purposes of informal or formal collaborative learning, community building or

interpersonal course objectives—student to student interaction may occur with or without an instructor (M. G. Moore, 1989).

Hillman, Willis and Gunawardena (1994) added a fourth interaction to describe that which is between the learner and the course: *interface*. If the learner has a difficult time interacting with the interface, it creates a barrier to interacting with any part of the course (i.e., content, instructor, students) and this can lead to dissatisfaction with the online course (Hill, Raven, & Han, 2002). Anderson and Garrison (1998) extended the interaction model to include interactions of teacher to content, teacher to teacher, and content to content (intelligent systems)—these interactions have since been more fully elaborated in light of recent research by Anderson (2003). It is important that distance educators are aware of all types of learner interactions when designing, teaching and evaluating online courses. The quality and satisfaction level of the learner's interaction with the content, instructor, classmates, interface, and all other interactions are mediated by communication technologies and form a significant part of the distance education experience (Hill et al., 2004).

For the sake of exploring the satisfaction levels of online students and faculty in this study, several sections of the student and faculty surveys were based on interaction theory. The student survey sections focused on satisfaction with interactions with the instructor, content, other learners, interface (technology), self, and student support services. The faculty survey sections focused on interactions between instructors and students, course content, interface (technology), and, their perception of the interactions between students. For each area of interaction, a set of four to eight survey

items was developed to measure satisfaction. These responses would later be correlated to overall satisfaction and course success. Interaction theory guided this study by signifying the terrain that was important to explore—learner interactions and instructor interactions.

Control

Wedemeyer had proposed the term *independent studies* to replace the term *correspondence studies* so as to emphasize the independent nature of the distant learner (Keegan, 1986). Moore referred to the independent learner as an *autonomous learner* (1973). In each case, the learner is independent from direct proximity of a teacher and autonomous to schedule their learning activities, and to a degree, *control* their learning.

The interaction of the learner to the course interface partially determines the degree of control that a learner is able to exercise over the educational process—whether it is bound by time (synchronous), as in the case of live teleconferencing, or not bound by time (asynchronous), as in the case of most online interactions. The learner's interactions must be balanced with the learner's *independence* to produce optimal learning (D. R. Garrison, 1989). Independence also relates to internal and external locus of control, whereby independent students attribute their course success to their own efforts (internal), and dependent students would attribute their course success to outside factors (external); students with internal orientations have been found to have higher completion rates than students with external orientations (Hill et al., 2004; Rotter, 1989).

The level of independence and control of DVC online students varies somewhat according to the instructor, department and institution. DVC does not offer self-paced online courses. The courses in this study were all full-term for the duration of fall semester, 2007—they all began in mid-August and ended in mid-December. For online courses, it is up to the instructor to determine the frequency and times in which students need to access the online course for discussions, quizzes, tests, etc. For example, instructors might release new lessons on a weekly basis and require activities and assignments to be completed on a weekly basis. The mathematics department requires that all major examinations (e.g., midterms and finals) be conducted on campus and online students are required to come to campus at specific times to take these tests. All such requirements put a limitation on the online student's independence (flexibility) and ability to control their learning.

To explore the application of control theory to this study, students were asked to rate their satisfaction with their own participation in the course. In particular, they were asked how satisfied they were with their self-motivation, self-discipline, organizational abilities, and achievement—interactions with self. To further explore the issue of control, students were asked about their perceptions of the time requirements, workload, and difficulty of the course in comparison to their expectations. An analysis of survey results will show how students' expectations of the course—underestimates, overestimates, accurate estimates—relates to their overall satisfaction.

Social Context

This concept relates to the social interactions of the learners to each other and to their instructor and the degree to which they feel socially connected. Rourke, et al. (Rourke, Anderson, Garrison, & Archer, 2001) refer to this as social *presence*, which describes the interpersonal interactions among participants in online education. Hill et al., (2004) in summarizing Moller's work (1998), state that, "When a learner has a higher degree of social presence, they are more likely to feel connected to the group, which in turn typically leads to greater satisfaction and reduces the likelihood that the learner will leave the environment" (p. 435). Paloff and Pratt wrote a book about why and how to build learning communities in the online classroom—to expand the social context in the online environment and improve learning conditions (1999). This theory was explored in this study by surveying the satisfaction levels of online students with respect to: sense of belonging in the class, interactions with other students, availability of instructor, and interactions with the instructor.

Equivalency

The equivalency theory of distance education is relatively new in the literature. As measured by Google hits, equivalency theory is not nearly as widespread as the previously described theories. However, equivalence theory provides a viable explanation for (a) how online course are viewed in the California community colleges, and indirectly, (b) why so little is understood about the *differences* between educational practices in online and traditional courses. According to equivalence theory, the goal of distance education, to "provide equivalent learning experiences for all students—distant

and local—in order for there to be expectations of equivalent outcomes of the educational experience" (Simonson, 1999, p. 7). The theory is that the distance learner's course experience can be different from a traditional learner's course experience, but the outcome should be equivalent for like courses.

However, this notion of equivalence, which refers to *outcomes* (student learning), is often directed (misdirected) at *processes*. For example, the California Education Code requires equivalent (identical) processes for the assignment of faculty to online courses or traditional courses. The only thing that matters is knowledge or experience in the discipline, not in the teaching of the discipline online. The district evaluation process for faculty teaching online is nearly the same as the evaluation process for faculty teaching on-campus. In my view, in order to expect similar outcomes of student learning in distance education, we should expect to use different (not equivalent) processes than traditional education. But, I digress, and my point is that this notion of equivalency—whether one is familiar with this theory or not—is often applied (misapplied) to processes, and overshadows the need for developing different processes for online education in order to expect similar outcomes.

As it pertains to this study, equivalence theory describes the expectations of community college constituents – they expect the results of completing an online course to be equivalent to the results of completing the same course on campus. Online courses count the same towards fulfilling DVC program requirements and university transfer requirements. This expectation is reinforced by the California Education Code, Title 5 of the California Code of Regulations which states that, "The same standards of

course quality shall be applied to distance education as are applied to traditional classroom courses, … and in regard to any local course quality determination or review process" (section 55207).

Best Practices in Distance Education

The educational literature is replete with studies and recommendations for best practices in distance education. In this section, we will focus on literature related to quality, student success/retention, student satisfaction, and faculty satisfaction, as these areas are most pertinent to this study.

Quality

At DVC, and many other colleges, if you discuss distance education with traditional faculty members, the discussion will inevitably touch upon the question of quality—are online courses as good as traditional courses? Interestingly, embedded in the question is the assumption that the traditional course is the standard by which to measure the online course (McDonald, 2002). In my experience, many administrators and faculties simply believe that online courses are not as effective as traditional courses and are lacking in quality. This perception is shared by higher education chief academic officers—in a recent survey, only 27.5% agreed that "faculty at my school accept the value and legitimacy of online education" (Allen & Seaman, 2006, p. 13). This perception is reinforced by knowledge of the lower retention and lower success rates of students in online courses compared to on-campus (Carr, 2000; Eisa, 2006; Nather, 2007). However, and this is beyond the scope of this study, students may choose to enroll in online courses for reasons other than why they choose to enroll in traditional

courses (i.e., flexibility of online schedule, trying to squeeze in an extra class, no time to come to campus, over commitment, etc.), and this may partially explain why students have a higher drop rate and lower success rate in online courses compared to traditional.

There have been many studies completed over the years to compare the academic achievements of distance learners to traditional learners. An annotated bibliography of 355 such studies was published in 1999 (Russell), "The No Significant Difference Phenomenon," to demonstrate that students achieve equally well through distance education as in the traditional classroom. However, some would argue that many of these studies had weaknesses in their research methodologies—small sample sizes, measurement errors, incorrect causal inferences, non-experimental designs, etc. (Lockee, Burton, & Cross, 1999; Phipps & Merisotis, 1999). Others would argue that such studies are not relevant given the potential of the online learning environment to exceed the learning outcomes of the traditional classroom, and would encourage future research on constructivist learning online (McDonald, 2002; Swan, 2005).

Student and Faculty Satisfaction

The Sloan Consortium, funded by the Alfred P. Sloan Foundation, is well known for promoting quality online education; according to their website, they seek to encourage the "collaborative sharing of knowledge and effective practices to improve online education" (Sloan-C, 2007). As part of their work, Sloan-C has published a synthesis of effective practices for online education that is continually updated by

member organizations (J. C. Moore, 2008), and organized around “five pillars of quality”(J. C. Moore, 2005):

1. Learning effectiveness
2. Cost effectiveness and institutional commitment
3. Access
4. Faculty satisfaction
5. Student satisfaction

These pillars have similarities to the document of best practices for electronic degree and certificate programs that was produced by the Western Interstate Commission for Higher Education (WCET, 2002) and widely adopted by accrediting agencies (ACCJC/WASC, 2007). For this study, I chose to explore the pillars of student and faculty satisfaction, because we know the least about them at DVC, and, theoretically, these are important precursors for student success.

The five pillars are interrelated and interdependent (Benke et al., 2004). For example, students are not likely to be satisfied with their online education if there is not adequate institutional support. Benke et al., point out that student satisfaction is linked to faculty satisfaction (2004) and that student satisfaction and faculty satisfaction are both linked to “interaction” (p. 21). This finding was based on two studies whereby one study correlated student satisfaction to the interaction variables of “support and guidance” and “stimulate interest” and the other study correlated satisfaction to “student-to-faculty interaction”, “student-to-student interaction” and “recommend faculty”. These variables, which were positively associated with student satisfaction, are

confirming of Moore's interaction theory of distance education (M. G. Moore, 1989), and the first two principles of the, "Seven Principles of Good Practice in Undergraduate Education" (Chickering & Gamson, 1987) which (a) encourages student-faculty contact, and (b) develops cooperation among students. Chickering later co-authored how these seven principles are applicable to teaching and learning with technology (Chickering & Ehrmann, 1996). The importance of effective communication and giving prompt feedback is mentioned throughout the literature on student satisfaction and distance education (Bolliger & Martindale, 2004; Kim & Moore, 2005; Ortiz-Rodriguez, Telg, Irani, Roberts, & Rhoades, 2005; Young, 2006). Furthermore, Thurmond et al. found that timely feedback to students was one of the strongest predictors of student satisfaction (Thurmond, Wambach, Connors, & Frey, 2002). Thus, the following factors are contributors to overall student satisfaction in online courses:

1. Prompt/timely feedback from the instructor
2. Student to instructor interaction
3. Student to student cooperation
4. Student to content interaction
5. Student to interface interaction
6. Faculty satisfaction

These factors were explored in this study, and analyzed for correlation and significance to overall student satisfaction and course success.

Student Success/Retention

To bolster the approach of exploring student satisfaction as a factor of course success/retention, I will refer to Astin's general education theory, "there is a consistent positive association between student satisfaction, undergraduate GPA [success], and retention" (Astin, 1993, p. 311). In other words, students who are satisfied with a course/program/institution are more likely to complete a class/program and get decent grades. Furthermore, studies have shown that student satisfaction is linked to interactions in online courses, reinforcing Astin's Input-Environment-Outcome assessment model, and, studies have shown that principles of good practice apply to online courses (Sahin, 2007; Thurmond et al., 2002). A positive correlation was also found between online student satisfaction with online support services and retention (Ludwig-Hardman & Dunlap, 2003; McCracken, 2004).

Additionally, there has been a lot of research on student/faculty characteristics/behaviors which might predict student retention in distance education courses (Dupin-Bryant, 2004; K. Moore, Bartkovich, Fetzner, & Ison, 2002; Morris, Wu, & Finnegan, 2005; Nash, 2005; Sahin, 2007; Wojciechowski & Palmer, 2005) as well as recommendations for how to improve online student retention (O'Brien & Renner, 2002; Shelton & Saltsman, 2005; Simpson & Head, 2000). The following list is a subset of student characteristics and online course processes that have been found to have a positive correlation upon student retention, and were explored in this study:

1. Attendance at an online orientation (Shelton & Saltsman, 2005; Wojciechowski & Palmer, 2005)

2. Number of previous courses completed online (Dupin-Bryant, 2004; K. Moore et al., 2002)
3. Students with prior computer experience (Dupin-Bryant, 2004; Lim, 2001)
4. Older age of student (Carr, 2000; Moody, 2004)
5. Internal locus of control (Morris et al., 2005)
6. Lower unit load (K. Moore et al., 2002)
7. Not too busy outside of school (K. Moore et al., 2002)
8. Online student support services (Ludwig-Hardman & Dunlap, 2003; McCracken, 2004)

No studies have found strong correlations with ethnic or gender characteristics and online student success (Shelton & Saltsman, 2005).

Summary

The history of distance education is founded in correspondence studies. Anna Eliot Ticknor and William Rainey Harper are sometimes referred to as the pioneers of American distance education, with their respective developments of a liberal education home studies program for women in 1873 and a general studies correspondence program for the University of Chicago around 1890.

There are two major characteristics of distance education that differentiate it from general education: (a) the learner and instructor are separated by distance, and typically, time (b) communication technologies are used between the instructor and student, and, typically between students. Michael Moore, one of the leading theorists of distance education has defined it as, “all forms of education in which all or most of the

teaching is conducted in a different space than the learning, with the effect that all or most of the communication between teachers and learners is through communication technology" (M. G. Moore & Anderson, 2003, p. xiv). This definition is similar to the one used for California Community Colleges and DVC, "Instruction in which the instructor and student are separated by distance and interact through the assistance of communication technology [for 51% or more of the time]" (Mora, 2004, p. 31). As new generations of communication technologies have developed, distance educators and institutions have embraced them in an effort to improve or expand teaching and learning at a distance. Since the 1990's, Internet-based instruction is the dominant communication technology. The fifth and current generation of technologies includes individualized student portals that are tied to institutional information systems. These systems are utilized to different degrees by digital natives (students) and digital immigrants (teachers).

Researchers and scholarly practitioners have developed distance education theories that have evolved, and continue to evolve. The following theories were used to help guide the design of this study with respect to facets of student and faculty satisfaction with online courses: Transactional distance, interaction, control, social presence, and equivalence theory. General education theories also apply to distance education. Theories and best practices of distance education have underscored the importance of exploring student and faculty satisfaction as precursors of overall satisfaction and online course success. From the literature, positive indicators of overall satisfaction are identified to include timely feedback from instructor, effective

interactions between the student and instructor, student and student, student and content, student and course interface, and faculty satisfaction. From the literature, positive correlates of online student success/retention are explored that include attending an online orientation, taking prior online courses, having prior computer experience, being an older student, internal locus of control, lower unit load, not too busy outside of school, and online support services.

In the next chapter, I will describe the methodology that was used to explore these relationships. The goal of this study is to better understand the dimensions and factors of student and faculty satisfaction so as to improve the quality of online education and increase the retention/success rates of online students.