Comparing Web-based instruction to traditional instruction for teaching special education content to general education preservice teachers

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COMPARING WEB-BASED INSTRUCTION TO TRADITIONAL INSTRUCTION
FOR TEACHING SPECIAL EDUCATION CONTENT TO
GENERAL EDUCATION PRESERVICE TEACHERS

by

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A dissertation submitted in partial fulfillment
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Comparing Web-based Instruction to Traditional Instruction for
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is approved in partial fulfillment of the requirements for the degree of

Doctor of Philosophy in Special Education

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ABSTRACT

Comparing Web-based Instruction to Traditional Instruction for Teaching Special Education Content to General Education Preservice Teachers

by

Kelly Elizabeth O’Neal

Dr. Susan Miller, Examination Committee Chair
Professor of Special Education
University of Nevada, Las Vegas

It has been documented that there are multiple ways to offer teacher preparation course work. Incorporating technology into teacher preparation programs using Web-based instruction may help address obstacles involving distance and time. The purpose of this study was to investigate the efficacy of using Web-based instruction as an appropriate method for disseminating information and teaching undergraduates in the college of education about appropriate teaching practices for students with disabilities. Data were collected to answer three specific research questions related to student achievement, student satisfaction, and quality and quantity of discussions.

There were 44 undergraduate participants in the study who were enrolled in ESP444, Teaching Exceptional Children in the Regular Classroom. Twenty-two participants were enrolled in the traditional section of the course that met in a classroom at the university. Twenty-two participants were enrolled in the Web-based section of the course that accessed the course through home computers. The instructional program for
both groups included the same required textbook, the same syllabus, and the same activities.

A pre/posttest was used to measure academic achievement. The pretest scores indicated that both groups of students began the course with the same knowledge. The posttest scores indicated that both groups of students gained knowledge from their respective method of instruction. A survey was used to measure the students’ perceptions of the course content, experience and their learning outcomes. The data collected for both groups of students indicated that there was a positive satisfaction outcome. Evaluation of the transcribed course discussions and printed threaded discussions were used to measure the quantity and quality of discussions. Several similar themes emerged for both groups of students indicating that both groups had similar discussions related to the course content. The results of this study have direct implications for the future preparation of teachers and indicate that using Web-based instruction is as effective as traditional instruction for preservice teachers.
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INTRODUCTION

Distance education and online courses are now commonplace in education. These new methods for delivering instruction offer flexibility to individuals. In some cases, individual courses are taken online and in other cases entire degree programs are offered online. Ray Kurzweil (1999) stated that the number of computers will surpass the number of humans by the year 2020. He projected that all students will have a computer by 2009 and that learning at a distance will become commonplace by 2019. Kurzweil believed that machines are surpassing human intelligence and that machines are replacing schools. His beliefs are a bit extreme for many educators, who adhere to the notion that human interaction cannot be fully replaced by machines (Stallings, 2001).

Communication and learning in the future are likely to involve the use of technology, but humans will continue to play a critical role in delivering instruction in most secondary institutions.

A recent survey by the U.S. Department of Education's National Center for Education Statistics (NCES, 1999) found that from 1994-95 to 1997-98 the number of distance education degree programs increased by 72%. Moreover, an additional 20% of the institutions surveyed planned to establish distance education programs within the next three years. Based on survey results, it is estimated that more than 1.6 million students
were enrolled in distance education courses in 1997-98 (Lewis, Snow, Farris, Levine, & Greene, 1999). This number is likely to continue to increase over the next decade.

Moore and Thompson (1997) described distance education as instruction involving separation of teacher and student using a form of media for communication. Keegan (1986) identified five characteristics of distance education, including (1) separation of teacher and learner, (2) influence from an institution in the planning and preparation of learning materials and student support, (3) use of technical media, print, audio, video, or computer to unite student and teacher and deliver course content, (4) provisions of two-way communication, and (5) individualized instruction with occasional meetings for didactic and socialization purposes.

History of Distance Education

The earliest version of distance education (i.e. correspondence courses) can be traced back to the 1700s. Correspondence courses emerged in Europe (i.e. Great Britain, France, Germany), and the United States. In the United States, there were several opportunities for adult learning including educational opportunities for women to study at home. Anna Ticknow established this type of learning program in Boston. Ticknow provided correspondence instruction to more than 10,000 students over 24 years using printed materials sent through the mail to communicate and teach (Verduin & Clark, 1991)

In the early 1900s, universities and private schools began offering correspondence courses to elementary, secondary, higher education, and vocationally oriented learners. In 1915, following a call by academicians to research the effectiveness of correspondence
education, the National University Extension Association (NUEA) was formed to evaluate correspondence courses and establish guidelines for acceptance of credit from these courses. Subsequently, quality standards were identified for correspondence educators to use in order to maximize learner outcomes (Verduin & Clark, 1991).

The Open University of UK distance education program was established in 1969 and combined print (i.e. mail) and non-print resources (i.e. video, radio, television) (Willis, 1993). Currently, this university is in operation with over 2,000,000 students. The current Open University of UK distance education courses use a range of teaching media – specially produced textbooks, TV and radio programs, audio and videotapes, and computer software. This distance education program offers more than 360 undergraduate and postgraduate courses in arts, modern languages, social sciences, health and social welfare, science, mathematics and computing. [http://www.open.ac.uk/]

In the late 1970s and early 1980s, cable and satellite television came into use. Professionally produced television series introduced adult learners to videotape programs focused on basic skills improvement. A disadvantage of this type of instruction was the lack of two-way communication between the teacher and learner. Video teleconferencing soon became available, initiating the possibility of two-way communication within distance learning programs. Attempts to integrate technology and print resources came to the forefront (Willis, 1993).

During the 1990s, a vast array of two-way distance education programs emerged as an assortment of hardware and communication tools became available. Included among these tools were: local area networks (LANs); Internet and intranets; telephone-based audioconferencing; facsimile transmission; cable television; and videoconferencing.
with one- or two-way video, fiber optics, satellite, microwave, closed circuit or low-power television (Fleischman, 1996). The Internet and digital applications in the 1990s added a new dimension to distance education. These new technologies brought educational opportunity to non-traditional students and the lure of economic prosperity to higher educational institutions.

Web-based Instruction

Web-based instruction is quickly becoming the predominant technology in distance education, which is not surprising given the accelerating power of computers (Lewis et al., 1999). The 1997-1998 National Center for Educational Statistics (NCES) report stated that Web-based distance education is the most prevalent and fastest growing technology used in higher education. Sixty percent of the reporting institutions offered distance education using asynchronous Web-based instruction: an increase from 22% in 1995 (Lewis et al., 1999).

Khan (1997) defined Web-based instruction (WBI) as “...a hypermedia-based instructional program that utilizes the attributes and resources of the World Wide Web to create a meaningful learning environment where learning is fostered and supported (p. 3).” The Web allows students to interact with a range of educational resources. Khan (2000) stated that Web-based learning deals with open, flexible and distributed learning environments that require a thoughtful analysis of how to use the Web’s potential in alignment with appropriate instructional design.

Relan and Gillami (1997) define WBI as “the application of repertoire of cognitively oriented instructional strategies within a constructivist and collaborative
learning environment, utilizing the attributes and resources of the web, as an emerging field in education (p. 43).” They also stated that WBI promotes the growth of distance education in an economical context because it provides reliable and inexpensive sources. According to Relan and Gillami (1997), WBI can serve as a: (1) resource for the identification, evaluation, and integration of a variety of information; (2) medium for collaboration, conversation, discussion, exchange, and communication of ideas; (3) platform for expression and contribution of artistic and cognitive understandings and meanings; and (4) medium for participating in simulated experiences and cognitive partnerships (p. 43).

The "virtual classroom" using a computer to access a course can be set up in two ways: (1) synchronous, in which the instructor and students meet in a chat room to discuss topics, and (2) asynchronous, in which communication occurs via bulletin or discussion boards, listserves or email. Both of these methods may incorporate communication tools, video/audio taped materials, testing software, web-based information sources, and telephone interaction. All of these tools make it possible for university faculty to instruct without face-to-face interaction.

There are a growing number of faculties beginning to explore the use of the World Wide Web (WWW) to complement traditional classroom-based courses. It is not uncommon for course syllabi to be placed on the web. Faculty members also use the World Wide Web to provide access to threaded discussions, group activities, and quizzes for their on-campus students. Web-based distance education allows the teaching/learning process to occur at any time and any place. Generally, students can participate in a course.
at their convenience. Because of these features, Web-based distance education is, in many ways, fundamentally different from traditional classroom-based education.

Web-based instruction is learner-centered, which differentiates it from its traditional counterpart, which is more curriculum-centered and instructor-centered (Saba, 2000). For some learners, Web-based instruction is attractive because it provides them with a route out of the "educational mainstream." Learners who have had negative experiences in more traditional face-to-face instruction may prefer the relative anonymity of distance education. Adult learners often cite convenience or flexibility as reasons for enrolling in distance education courses. Distance education is a viable alternative for learners who live long distances from a higher education institution. It is also convenient for individuals who have time intensive obligations (e.g. family, work), or who lack transportation or childcare. In such cases, attending traditional classes may be impossible.

Saba (1999) stated "technologies of the information age have the potential to bring education to each person by allowing individuals to take more responsibility for their learning and achieve independence of thought and action" (p. 2). He also stated that education in technology-based environments, needs to be (a) learner-centered, rather than teacher-centered, (b) case-based, rather than content-based, and (c) contextualized, rather than abstract. Clearly, the Web provides numerous opportunities for self-directed learning.

Kerka (1996) suggested that distance learning on the Web could be cheaper, faster, and more efficient than other learning modes, but not necessarily more effective. Web-based education provides an alternative means for delivering instruction; however,
there are still many barriers to overcome. Student access to computers is limited and few university/college programs have enough computers or trained staff to accommodate the demand for Web-based instruction. Additional barriers include: (a) costs or problems with of hardware, software, Internet service providers, and training; (b) investment of time required to learn and to use the Internet; (c) out-of-date websites; (d) connectivity problems (e.g., busy phone lines, Web sites that go down, slow servers); (e) use of the Internet because it can be unpredictable; and (f) need for continual staff development.

Other research suggests that some learners require or prefer more structured learning environments (Saba, 1999). Learners may lack the knowledge to navigate the Internet and to address technical difficulties that can occur (slow modems, computer breakdown, incorrect website addresses). Social isolation, lack of nonverbal cues, and information overload are some other disadvantages to online learning (Kerka, 1996).

It has been suggested that the primary benefit of implementing distance education programs at post secondary institutions is to increase the enrollment of nontraditional students and reduce program costs (Willis, 1995). Another benefit of distance education includes access anywhere and anytime. Individuals who might not otherwise decide to pursue postsecondary education due to geographic constraints, time, job, family responsibilities may be able to take advantage of these new programs in the convenience of their own home on their time schedule. However research findings on the impact of distance education enrollments and costs are still not conclusive (Gladieux & Swail, 1999).

When colleges and universities look at implementing distance education courses it is important to refer to The Seven Principals of Good Practice in Undergraduate
Education described in the American Association of Higher Education Report, 1991 (Institute for Higher Education Policy, 2000). These principles were identified in an effort to disseminate information related to training undergraduates to be productive in their field of study. Each principle is discussed related to the application of distance education:

1. Encourage student and faculty contact. This can be accomplished by the use of email, online journals, online office hours, feedback on assignments, and sharing information about one another for all to view.

2. Encourage cooperation among students using group projects, discussions, peer editing, and posting questions to solicit responses.

3. Engage students in active learning. Encourage students to talk, write, discuss, and relate experiences about the subject. Case studies can also be used as a way to increase active learning and help construct a knowledge base to use in students’ fields of study.

4. Provide prompt feedback during discussions and on written assignments. The facilitator/teacher needs to give feedback whenever student performance is being monitored.

5. Spend quality time on task. Technology can attract students to spend more time because they can do it on their own time and at their own pace. In traditional university/college settings, it is expected that students accommodate to specific times and locations.

6. Communicate high expectations. It is important for facilitator/teacher to have high expectations in both a traditional classroom setting and a distance setting regardless of the nature of assignments and teaching processes.
7. Respect diverse talents and learning. Technology is a vehicle for using different instructional methods, allowing flexibility in time, and providing a mixture of resources. Students with disabilities can use assistive technology and do not need to come to class. There is flexibility to alter assignments.

Statement of the Problem

Interest in Web-based instruction continues to grow and is influencing learning and teaching programs in postsecondary institutions. The delivery of information over the Web has increased interactions among students, faculties, colleges, and universities (Khan, 1997). Listserves, Web-based courses and email have become a common component in many college level courses across various disciplines and they are changing the traditional face of education (Harasim, Calvert, & Groeneboer, 1997). Since there is outstanding growth of Web-based instruction on university/college campuses, the effectiveness of using online learning communities should be assessed prior to further adoption of this type of instructional delivery (O’Malley, 1999). To deliver instruction via the Web, institutions must look at the design in the following areas: 1) the role of faculty and students, 2) Web-based teaching techniques and strategies, and 3) collaborative online learning activities (Harasim et. al., 1997; Khan, 1997).

Purpose of the Study

It has been documented that there are multiple ways to offer teacher preparation course work. Incorporating technology into teacher preparation programs using Web-
based instruction may help address obstacles involving distance and time. In order for Web-based instruction to advance as an appropriate distance education medium for disseminating information and teaching undergraduates in the college of education about appropriate teaching practices for students with disabilities, it is important that it is first established as an effective method.

Learning effectiveness is often measured in terms of students' satisfaction, participation and performance. Despite the expansion of Web-based instruction (WBI), research indicates there may be some resistance toward participation by college students in these courses (Olcott & Wright, 1995). Some students feel more comfortable with traditional lecture formats and face challenges when the course shifts into Web-based instruction. Cornell and Martin (1997) identified six challenges related to Web-based instruction. Included among these were: (1) degree of collaboration between student and teacher; (2) degree of interaction among students and between students and teacher; (3) difficulty in using the Web; (4) access to the Web; (5) delivery of content on the Web; (6) communication ability of students. Achievement, attitudes, and course interactions may be negatively influenced among students who encounter these challenges.

The purpose of this study was to investigate the efficacy of using WebCT as a distance education tool in an introductory undergraduate course in special education. Specific research questions designed to address this purpose are:

1. Is there a difference in academic achievement between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?
2. Is there a difference in course satisfaction between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?

3. Is there a difference in the frequency and quality of discussion between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?

Significance of the Study

The World Wide Web is now being used to replace the traditional classroom lecture. A number of courses are being developed in which portions of the course or the entire course is offered via the Web. Instructors may place course notes on Web-based course sites, may create video recordings of live lectures for viewing on the Web, or may use combinations of these methodologies (Khan, 1997).

Telecourse, an online course directory, lists 60,000 Web-based courses worldwide in all areas (e.g., science, art, business, education) with price ranges from $50 to $1000 per course (http://courses.telecampus.edu/subject/index.cfm). Within this directory there are 123 courses listed specifically related to special education content. This number may not represent the total number of courses since new Web-based courses are emerging on a regular basis. Moreover, random comparisons between the courses listed in the online directory and courses listed in the same university catalogs reveal discrepancies. More Web-based courses are listed in the catalogs than in the online directory. In one instance, four courses were listed in the online directory and 15 online
courses were listed in the university catalog. Thus, it is safe to conclude that the total number of Web-based courses exceeds 60,000.

Effectiveness of the Web as a teaching tool has been addressed in different academic disciplines including business, political science, engineering, education, and library sciences. Few studies on student preferences or effectiveness on learning about students with disabilities for undergraduate teacher preparation have been conducted. Holt (1996) stated “Adult educators, like everyone else in teaching and learning enterprises, are forced to weigh the ethical issues attached to instructional technology and there is clearly no consensus of opinion that exists on the effectiveness or value of student learning resulting from using the Internet as an instructional method” (p. 16). Web-based education may offer flexibility, accuracy and convenience as well as cost and time savings. The question still remains: Is this new educational method effective for students?

Limitations of Study

The participants in this study were limited to undergraduate students taking an introductory course in special education and represent a relatively small sample size. Students were able to select which course section (i.e., Web-based or traditional) they were going to participate in, so there was no control for student characteristics. The selected course and geographical site for the study was limited to an introductory course in special education within an urban university located in the Southwestern portion of the United States. Therefore caution must be used when generalizing results to other courses.
within the same university and when generalizing results to other universities and colleges in different parts of the United States.

Definition of Terms

1. Asynchronous – Communication in which interaction between parties does not take place simultaneously (Willis, 1993).

2. Collaborative/Cooperative Learning - The process of getting two or more students to work together to learn (Friend & Bursuck, 2002).

3. Digital – An electrical signal that varies in discrete steps in voltage, frequency, amplitude, locations, etc. Digital signals can be transmitted faster and more accurately than analog signals (Willis, 1993).

4. Distance Education – The process of providing instruction when students and instructors are separated by physical distance and technology (Willis, 1993).

5. Distance Learning – The desired outcome of distance education (Willis, 1993).

6. Download – Using the network to transfer files from one computer to another (Willis, 1993).

7. Electronic Mail (Email) – Sending messages from one computer user to another (Willis, 1993).

8. Facilitator – The online course instructor is often referred to as the course facilitator. Online instructors do not retain their traditional "teacher-centered" roles from the on ground paradigm. Instead, they become the medium through
which discovery learning is facilitated in a student-centered environment (Willis, 1993).

9. High-Incidence Disabilities – Any of the most common disabilities outlined in P.L. 105-17, including learning disabilities, speech or language impairments, mild mental retardation, and serious emotional disturbance (Friend & Bursuck, 2002).

10. Hypertext Markup Language (HTML) – The code used to create a home page and is used to access documents over the WWW (Willis, 1993).

11. Hypertext Transfer Protocol (HTTP) – The protocol used to signify an Internet site is a WWW site, i.e. HTTP is a WWW address (Willis, 1993).

12. INCLUDE Strategy – A strategy for accommodating students with special needs in the general education classroom (Friend & Bursuck, 2002).

13. Inclusion - Term used to describe a professional belief that students with disabilities should be integrated into the regular education classrooms and should be full members of those classrooms (Friend & Bursuck, 2002).

14. Listserv – An e-mail program that allows multiple computer users to connect onto a single system to create an on-line discussion (Willis, 1993).

15. Local Area Network (LAN) – Two or more local computers that are physically connected (Willis, 1993).

16. Low-Incidence Disabilities - Any of the least common disabilities outlined in P.L. 105-17, including multiple disabilities, hearing impairments, visual impairments,
orthopedic impairments, other health impairments, deaf-blindness, autism, and traumatic brain injury (Friend & Bursuck, 2000).

17. Modem: A piece of equipment to allow computers to interact with each other via telephone lines by converting digital signals to analog for transmission along analog lines (Willis, 1993).

18. Multimedia – Any document, which uses multiple forms of communication, such as text, audio, and/or video (Willis, 1993).

19. Network – A series of points connected by communication channels in different locations (Willis, 1993).

20. Online – Active and prepared for operation. Also suggests access to a computer network (Willis, 1993).


22. Server – A computer with a special service function on a network, generally receiving and connecting incoming information traffic (Willis, 1993).

23. Synchronous – Communication in which interaction between participants is simultaneous (Willis, 1993).

24. Traditional Instruction - Teaching process in which an instructor provides face-to-face instruction and guidance to assist students in gaining mastery of specific knowledge or skills.
25. Virtual Classroom (VC): An online discussion forum where most of the conversations relating to the coursework take place (either synchronously or asynchronously) (Willis, 1993).

26. Web-based Instruction (WBI) – Teaching process in which a computer is used to enhance the learning environment by assisting students in gaining mastery of specific knowledge or skills (Willis, 1993).

27. WebCT – A course platform that provides a standard way to organize course materials and integrate multimedia presentations in course delivery on the World Wide Web using a number of learning tools, including an online discussion board, course content searches, a course calendar, electronic mail, auto-marked quizzes, navigation tools, access control, grade maintenance and distribution, and student progress (Marsh, Price, & McFadden, 2000).

28. World Wide Web (WWW) – A graphical hypertext-based Internet tool that provides access to homepages created by individuals, businesses, and other organizations (Willis, 1993).

Summary and Overview of Remaining Chapters

The intent of this study is to provide information regarding the effectiveness of using Web-based instruction (WBI) to teach undergraduate students in the College of Education about students with disabilities. Specifically, the researcher wants to determine if an undergraduate course delivered using WebCT is as effective as the traditional method of university teaching to provide students within the College of
Education the necessary knowledge and competencies to teach students with disabilities. The results of this study have direct implications towards the future preparation of teachers.

Details related to this study are addressed in the subsequent chapters. A review of the literature is provided in Chapter Two. The methodology of the study is provided in Chapter Three and the results with related discussion are reported in Chapters Four and Five.
CHAPTER 2

REVIEW OF LITERATURE

Literature Review Procedure

Studies included in this review were located through a comprehensive search of research in the Educational Resource Information Center (ERIC), ABI inform, Academic Search Elite, ACM Digital Library, Digital Dissertations, EBSCO Database, and IEEE Electronic Library. The following descriptors were used: distance education, distance learning, online learning, Web-based instruction (WBI), and WebCT.

A manual search through selected journals, and a search through reference lists obtained from selected articles also was conducted. Included in these journal searches were: Journal of Distance Education, American Journal of Distance Education, Journal of Special Education Technology, Journal of Research on Distance Education, Teacher Education and Special Education, Studies in Continuing Education, Journal on Educational Research, and Journal of Research on Technology in Education.

Also, an Internet search was conducted using a search engine referred to as Google. The following keywords were used: distance education, distance learning, online learning, Web-based instruction (WBI), and WebCT. This search was conducted to find specific research and/or programs in distance education.
Selection Criteria

The purpose of this chapter is to summarize the professional literature related to the effectiveness of using distance education versus using the traditional method of course delivery. The professional literature contains references to studies using various mediums of distance education (i.e., videoconferencing, two-way interactive television, Web-based instruction). The researcher included an overview of two reviews of literature related to the general use of distance education. For the remainder of this literature review, studies were limited to reflect a medium identified in the literature as Web-based instruction (WBI) or Internet instruction.

Studies were included if they included one or more of the following dependent measures: perceptions of Web-based instruction or Internet instruction, achievement in Web-based or Internet instruction, and participation in Web-based or Internet instruction. These dependent measures were selected because they specifically relate to this study. Due to the limited number of studies that directly relate to teacher preparation in the area of special education, the researcher chose to include studies within other course disciplines. To be included in this review of literature, studies had to be experimental with a clear description of the research design, procedures, and results. These criteria were selected to ensure the inclusion of high-quality research designed to investigate the effectiveness of distance education through web-based and the Internet.

This chapter is organized into four sections. The first section includes a review of literature related to distance education. The second section includes studies related to teacher preparation and distance education. The third section includes a study
specifically related to the use of WebCT. The fourth section describes studies using distance education instruction in non-educational disciplines.

Reviews of Literature Related to Distance Education

With the growth of distance education, it is important for institutions to have accurate, comparative information regarding student-learning outcomes in distance education and traditional classes. Thomas Russell has been dedicated to providing such information. In his book *The No Significant Difference Phenomenon* (1999), he identified and summarized 355 studies related to the effectiveness of distance education. Most of the studies he identified suggest that the learning outcomes of students using distance education are similar to the outcomes of students using traditional classroom instruction.

The Institute for Higher Education published a report, *What’s the Difference? A Review of Contemporary Research on the Effectiveness of Distance Learning in Higher Education* conducted by Phipps and Meristois (1999), which has generated considerable discussion about what constitutes quality in distance learning settings. The study was conducted to validate benchmarks that have been published by various entities, with specific attention to Internet-based distance education. The specific purpose of this report was to review the findings of the original research and assess the overall quality of the analysis; identify gaps in the body of literature; and discuss the implications of the research. The review was limited to written material published during the 1990s.

The researchers reviewed the literature related to the effectiveness of distance education. The purpose of their analysis was to examine the research conducted in the
area of distance education. They reviewed 40 studies, including descriptive research, case studies, correlational research, and experimental research and found that distance education and traditional classroom instruction were similar in terms of student outcomes, attitudes, and satisfaction. The researchers, however, noted a number of weaknesses in the reviewed studies including limited control for extraneous variables, not selecting random subjects, and limited validity and reliability of instruments used. Some of the gaps included that the studies did not explain or account for dropout rates or different learning styles.

These authors suggested that research on distance education is being driven by an information revolution, which is having a profound impact on universities and colleges; they further noted that care should be taken to ensure that the application of distance programs is effective in students' professional development.

The major conclusion of the authors was that the research to date addressing the quality of distance education was inconclusive and, thus, much is still unknown regarding how and in what ways, technology can enhance the teaching/learning process.

Teacher Preparation and Distance Education

Wegner, Holloway & Wegner (1999) conducted a study using a traditional university course and a Web-based course. They were interested in finding out if there were significant differences in student achievement, as measured by teacher-prepared tests, and if there were any differences in the perceptions of these two groups about their learning opportunities as measured by student surveys and student evaluation instruments.
Graduate students selected to participate were allowed to self-select either traditional class section or a Web-based section in a curriculum design and evaluation course. The control group (N=17) received instruction in a traditional lecture, question-answer, and small-group activity format during sixteen, three-hour periods. The experimental group (N=14) did not attend any classes on-campus except to present their final products. The instructor provided training on technologies that would be used.

Members of both the experimental and control groups were primarily educators who were currently employed as classroom teachers in rural schools. All members were part-time students in a master's degree program associated with principal certification. The researchers used a problem-based model as the method for education.

To measure learning outcomes of the control and experimental groups, an identical 100-point exam, comprised of objective, short answer, and essay questions was administered to both groups at the end of the semester, which was monitored and graded by the instructor. Means for the two groups were similar.

The researchers did not find any statistical difference in student perceptions of their learning opportunities, but it was noted that the students in the experimental group had a more positive feeling about the course. The authors concluded that Web-based delivery of coursework appeared to have no negative effect on student achievement or perception of learning.

Leonard and Guha (2001) conducted a pilot study with a follow-up formal study to compare student perceptions regarding Web-based learning in the College of Education at a large urban university. The two courses selected were Curriculum in Early Childhood Education and Teaching Children Mathematics. Both courses were
taught in a Web-based format, instead of their traditional face-to-face format. Their specific research questions were (1) What are students’ beliefs and perceptions about taking Web-based courses, and (2) How do students who have taken Web-based courses perceive their value?

The sample of students selected for the pilot study included 24 students who had participated in the traditional delivery of the two courses. The formal study gathered responses from students who finished the same course using the Web-based method of instruction. The sample of students in both the pilot and formal study included students, aged 20-45, who were enrolled in the course. The majority of students were female (37 females and 7 males). Participation in the studies was voluntary and 24 students agreed to participate in the pilot study and 20 students agreed to participate in the formal study.

A survey instrument was used to obtain data in the pilot study, which included 10 items and was based on a 5-point Likert scale. The results indicated that 53% agreed or strongly agreed that more courses should be made available through the Web. The second question related to offering all courses through the Web and 48% of the students agreed or strongly agreed. The third question related to effectiveness of course content taught on the Web; 38% of the students agreed or strongly agreed that the course was effective and 38% disagreed or strongly disagreed. The results of question four indicated that 42% of students would enroll in a Web-based course and 46% stated they would not enroll in a Web-based course. Question five asked the students if they believed learning the course content on the Web would provide them the necessary training to teach children in the content area. Of the respondents, 35% agreed or strongly agreed and 35% disagreed or strongly disagreed. Question six addressed student attitudes about their
communication with the professor in a Web-based learning environment, and 26% of the respondents agreed or strongly agreed they had good communication with the professor; and 30% disagreed they had good communication. The largest response in this area was neutral (43%), probably due to lack of experiences with the Web. Question seven addressed perceptions of the promptness in responses to emails (62% agreed or strongly agreed they received a prompt response to their emails; and 5% disagreed they received a strong response to their emails). Question eight addressed whether the Web-based course provided less time to meet with the course instructor (25% agreed and 58% disagreed). Question nine asked the students if they would learn less in a Web-based course; 42% agreed or strongly agreed and 42% disagreed. The last question focused on the use of chat rooms replacing traditional classroom, 70% agreed and 13% disagreed that chat rooms could not replace traditional interaction. The discrepancies in the percentages are due to a neutral category on the rating scale.

Twenty participants were given a survey for the formal study. These students were participating in the Web-based course. The results indicated that students enrolled in the Web-based courses were positive about their perceived effectiveness. Researchers stated that overall, 75% of the students stated they were satisfied with their Web-based experience, 60% stated it gave them better learning opportunities as compared to the traditional course, and 50% stated the Web-based experience gave them more opportunities for interactions than the traditional course.

Students in this study had positive perceptions about using Web-based instruction. The study does not take into account whether students gained content knowledge, which might be a critical component in determining whether Web-based instruction is effective.
Smith, Smith, & Boone (2000) conducted a study to compare the effectiveness of traditional instructional methods to a Web-based learning environment. Their specific research questions were (1) Are lectures, when presented in a Web-based learning environment, as effective as lectures presented in a traditional classroom environment, (2) Is guided instruction, when presented in a Web-based learning environment, as effective as guided instruction presented in a traditional course, and (3) Is collaborative discussion, when carried out in a Web-based course, as effective as collaborative discussion in a traditional course?

The participants included 58 preservice students enrolled in an educational technology course. The students were pre-registered into the course so the researchers used a random method of placing the students into groups. The traditional classroom used for this study was a hands-on Macintosh computer lab at the university. The Web-based learning environment was the digital classroom. There were two instructors, who used a team-teaching approach for both courses using the same course content for both sections. Data were collected using pre- and posttests and were analyzed using analysis of variance (ANOVA) and t tests.

The researchers conducted a formal evaluation of the digital classroom to determine the appropriateness for the course. Training was provided to the students in the use of the digital classroom. The first instructional intervention investigated was lecture; specifically using two different lectures presented at separate times to all the students in both the Web-based and traditional section. Both groups of students took a pretest before instruction and a posttest after instruction. Students' scores on the pretest were the dependent variable. The results for Lecture One indicated that the interaction
between methods (Web vs. traditional) and tests was not significant. The analysis of the main effect method on posttest scores indicated there was no significant difference between groups. For Lecture Two, the interaction between method and pretest vs. posttest was not significant meaning there were no significant differences in the methods. The analysis for main effect for method (Web vs. traditional) versus posttests demonstrated significant differences between groups, the traditional group outperformed the online group. The researchers noted that the traditional group did better than the Web-based group on average by 1.3 points. The main effect for the pretest versus the posttests indicated there was a significant change in scores from pretests to posttests.

The second instructional intervention investigated was guided instruction. Guided instruction included lectures and demonstrations on how to use integrated software programs to create products that enhance instruction in the classroom. For the traditional group, the instructor used a projection device to display step-by-step computer procedures for creating newsletters and slide shows. There were no significant differences in academic outcomes between method (Web vs. traditional) and tests (pre vs. posts). The analysis of main effect indicated that the traditional and Web-based groups performed equally as well. The main effect for pre- and posttest indicated that posttest scores exceeded pretest scores. The guided instruction for Web-based students was created using a software package to replicate the traditional lectures/demonstrations to display step-by-step computer procedures for creating newsletters and slide shows. This material was provided to the students on CD-ROMS. The same pre- and posttests were administered to all students. There were no significant differences between method (Web vs. traditional) and pre/posttests. Students receiving Web-based instruction performed as
well as students receiving traditional instruction at both pre- and posttest. The traditional
and Web-based groups performed similarly on the posttest. The posttest scores were
significantly higher than the pretest scores for both groups.

The third variable, collaborative discussions were set up using two interventions,
one was traditional course discussion and the other was threaded discussion used in an
Web-based environment. Participation in both methods was a required component of the
course. Students in both methods were given the same pre- and posttests. Results
indicated that there was a significant interaction between method and tests. The
researchers conducted a follow-up test and found that there were no significant
differences between all pair-wise comparisons of the means. The analysis of the main
effect for method versus instruction indicated that the traditional group outperformed the
Web-based group on average by 2.68 points. Posttest scores exceeded pretest scores.
For the second intervention, there was no significant difference in academic achievement
in Web-based versus traditional. The analysis of methods on posttest scores indicated
there were no significant differences in performance. There was a significant change in
pre- to posttest scores for both groups.

The authors concluded the overall use of a Web-based environment to provide
instruction to preservice education students proved as effective as the traditional method.
Differences in amount of discussion in the traditional group versus the Web-based group
were identified. In the literature, it is often noted that traditional methods provide more
opportunities for interaction and that it can be a disadvantage in a Web-based course not
to have interaction. The results of this study seem to indicate differently; the researchers
stated there were fewer discussions in the traditional group than in the Web-based group.

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This study was conducted methodically and provided very strong support for the use of distance education technologies, specifically using the Web to teach course content. It is important to remember that the course content and instructor delivery in this study might have proven to be the effect variable in the academic gains instead of the method (traditional and Web-based).

Education at a distance has been viewed by some individuals as effective, but less desirable among others (Spooner, Jordan, Algozzine, & Spooner, 1999). Research on the effectiveness of distance education has resulted in mixed opinions, and research in the area of use of Web-based instruction for special education course content is minimal.

WebCT Studies

Many of the fore mentioned studies do not specify which course management tool or course platform was used to deliver course content over the Web. Day and Sebastian (2002) conducted research to investigate the impact of distance education practices (communication, pedagogies, instructional methodologies, and technology) on students’ learning using two different technologies; one was WebCT, a course management system, and the other was EDNET, a system that uses multiple technologies (i.e. interactive video, audio, and satellite transmissions) that link students in classrooms interactively. Participants included six graduate students enrolled in a course about visual impairment. Of these students, two were on-campus and four were at remote sites (one site had two students).

Data from the participants included interviews; artifacts (e.g., e-mail, postings, interactions, data from WebCT software, filed notes, and course evaluations); and
inArmal Acus-group discuss using EDNET, an interactive visual, audio, and data
network system. An individual not associated with the study conducted the interviews.
This was a qualitative study, in which both authors read through the material numerous
times and coded it to look for emerging themes.

Several distinct themes emerged in the research. The first theme involved the
influence of the technology on the students’ experience of the course. Results indicated
that the participants were comfortable with both forms of technology at different levels.
Five out of six of the students reported that overall they like EDNET as a delivery model.
Four students noted that EDNET provided an opportunity to view each other and interact
in real time, which they considered positive. Five of the six participants thought that
WebCT was generally helpful. Some of the benefits of WebCT identified by the students
were access to grades, calendars, and bulletin boards. Some challenges of WebCT
identified by students were computer problems or servers that were not working properly.

The second theme focused on the opportunities to communicate and build
relationships. Results indicated a mixed feeling about communication. One student
stated that she liked EDNET better because she received immediate feedback to questions
even if the instructor was at a remote site. Other students identified EDNET as more
positive because of real-time interaction and being able to see other students. The third
theme that emerged in this research was coded as other issues and concerns. Students
stated that they liked the access WebCT gave them to their assignments and coursework
and that they liked being able to complete assignments at their own pace and time. Also,
students stated that WebCT helped them organize course content.
The authors state the findings suggest that all the participants experienced frustrations and successes with both technologies. Similar to other related research, concerns about student interactions emerged in this study. Students still favor being able to interact in real-time. The authors' presentation of material related to these technologies was interesting in its identification of EDNET because this is a distance education technology, but it still has the component of face-to-face instruction because of the interactive videos and audio. This study could be strengthened if a traditional class was added to serve as a control group to identify if the interactions were a factor in determining perceptions of technologies. Also, it would be important to demonstrate academic gains, if any exist.

Use of Distance Education in Non-Education Disciplines

Bourne, McMaster, Rieger, & Campbell (1997) conducted a study to measure the effectiveness of distance education. They analyzed the performance of two class sections of an introductory graduate level accounting course. One section was a traditional, campus-based class taught using a traditional lecture mode. The other section was taught in a Web-based format with no face-to-face contact with each other or the instructor. The Web-based students communicated via telephone, e-mail, threaded bulletin board discussions and synchronous chat technologies. Except for the textbook, the Web-based class received all material for the course over the Internet.

For both sections the same text, syllabus, assignments and examinations were used. The traditional course met once a week for two and a half hours over a 17-week semester. The Web-based section never formally met during the same 17-week period.
At the beginning of the semester, the students were asked a series of questions designed to provide background information. The three relevant questions for this study were: 1) how many graduate hours have you completed prior to this course? 2) How many accounting hours have you completed prior to this course? 3) How many years of work experience do you have? The researchers employed a one-way fixed effect analysis of variance to determine whether the Web-based students were different from the traditional students and found that there were some differences in experience and age.

The researchers used a pre- and posttest to measure student knowledge of course content. The authors noted that there was a significant difference in performance on the pretest possibly because the Web-based students had an accounting prerequisite; whereas, the traditional students had no such prerequisite. Based on the posttest results, the researchers concluded that students performed similar in both teaching environments.

The strength of this study was the methodology. The authors aligned the course similarly to find out if there was a difference in academic achievement. The weakness in their methodology was the lack of control for prior course content. The results indicated there were differences in the two groups on the pretests and no differences on posttests, but the Web-based group had prior experience with course content, which may have skewed results.

Schulman & Sims (1999) conducted a study to compare Traditional and Web-based instruction in five courses including: Organization Behavior, Personal Finance, Managerial Accounting, Sociological Foundations of Education, and Environmental Studies. There were 40 undergraduate students enrolled in the Web-based courses and 59 undergraduate students enrolled in the traditional courses.
The researchers designed pretests and posttests to measure the level of knowledge students had of the course content prior to beginning the course and at the end of the course. Pre- and posttest formats differed by instructor, but were scored on a 100-point scale. The average pretest score for Web-based students was 40.70. The average pretest score for students enrolled in the traditional class was 27.64. Posttests for each class were similar to the pretest for that class. The average posttest score for Web-based students was 77.80. The average posttest score for the traditional class students was 77.58.

Results indicated that Web-based students scored significantly higher than the traditional students did on the pretest. However, their results indicated that there were no significant differences for the posttest scores for the Web-based and traditional students. Their study demonstrates that the learning outcomes of both groups of students were similar. The authors suggested that the Web-based students might have scored higher on pretests because the type of students who select online courses may be better prepared for the course content.

The strength of this study was the use of five courses and the results being similar for all of the courses. A weakness of this study was the lack of control for the pretest. The Web-based students could have looked at course materials while taking the pretests. This may have been a factor in the higher pretest scores among the Web-based students.

Lockyer, Patterson, Harper (1999) compared the effectiveness of teaching health education in a Web-based environment to teaching the same course in a traditional, face-to-face environment. During phase one of the study, the researchers developed and conducted an evaluation of the learning activities used in the Web-based environment.
Phase two of the study included a formal evaluation of the effectiveness of using the Web-based environment as compared to the traditional instruction. The study involved 62 students enrolled in a health course conducted over a 14-week period. A crossover factorial design was used. The students were randomly assigned to one of the learning environments for the first part of the course and then halfway through the semester they switched learning environments. The same material was presented to both groups.

Pre- and posttest questionnaires were given to all students to assess knowledge, attitude, and behavior related to the health topics covered in the course. The questionnaire was based on a five point Likert-scale. For the questionnaire, pilot testing resulted in a reliability of 0.713 using Cronbach’s Alpha ($\alpha=0.758$). To investigate the discussions, the learning activities were recorded using audiotapes and electronic Web logs. Students were randomly selected to participate in an interview to gather information regarding the perceptions of engagement in activities and their perceptions of the course. During the final class, all students were asked to complete a survey related to their use of the Web in general, perceptions of the Web-based environment and engagement in course activities.

The findings indicated that in all three domains knowledge, attitude, and behavior (with the exception of behavior for the class group), both groups made improvements but the Web-based groups made the greatest amount of improvement. Posttest means for each group were compared using analysis of covariance with the pretest means used as the covariate. Results indicated there were no significant differences between the groups on the posttest. Because there were no significant differences, each group’s change from pretest scores to posttest scores were analyzed. There was no significant difference for
the traditional class group, but there was a significant difference for the Web-based
group. Also, the domains of attitude and behavior produced positive results by the Web-
based group in both areas, but did not achieve statistical significance. The authors noted
that careful consideration must be taken in reviewing the results from pretest to posttest
for the traditional group due to the high scores on the pretests.

The perceptions of the students indicated a positive attitude toward the Web-
based course. The researchers also indicated there was a correlation between the degree
of student improvement and the degree of positive perceptions. Eighty-three percent of
the students stated they enjoyed using the Web site for the course content. The authors
noted that the students' perceptions of quality and quantity of participation and
interaction among their work group were higher in the Web-based environment.

The strength of this study is that it provides evidence that both methods produced
similar results in achievement and perceptions. The authors identified that student
perceptions of quality and quality were better in the Web-based group than the traditional
group. To strengthen this study, it might have been helpful to include a measure of the
quantity and quantity of the discussions. A weakness of this study was that the
participants had a considerable amount of prior knowledge about the subject. Results
may have been different if participants had limited or no knowledge in the course
content.

Summary of Literature

Colleges and universities are beginning to analyze the effectiveness of learning
through the use of Web-based education. Although limited in number, most of these
initial studies suggested that learning outcomes of students using Web-based technology for distance education are similar to the learning outcomes of students who participate in traditional classroom instruction. Also, attitudes and satisfaction levels among students are generally positive. Research comparing Web-based instruction to traditional face-to-face instruction in a variety of disciplines (i.e., accounting, organization behavior, personal finance, sociological foundations, environmental studies, and health education) indicates that teaching and studying at a distance can be as effective as traditional instruction, when the method and technologies used are appropriate to the instructional tasks, when there is student-to-student interaction, and when there is timely teacher-to-student feedback (Moore & Thompson, 1997; Verduin & Clark, 1991).

Results related to student satisfaction regarding communication with the instructor, collaboration with other students, and perceived effectiveness of student learning illustrate mixed results (Pirrong & Lathem, 1990; Richie & Newby, 1989). Pirrong & Lathem (1990) stated that opportunities for interaction among students and between students and instructor seemed to negatively affect distance education students.

To enhance the reliability of the research findings related to the effectiveness of Web-based instruction when compared to traditional instruction researchers need to conduct more studies. There is a specific need for research related to special education courses. Also, many studies involving Web-based instruction fail to mention the specific course management tool used. This variable may directly influence the effectiveness of Web-based learning and therefore needs to be studied.
CHAPTER 3

METHODOLOGY

The purpose of this study was to investigate the effectiveness of using Web-based instruction compared to traditional instruction in an introductory undergraduate course in special education. This chapter is organized into seven sections related to the methodology for this study: (1) research questions; (2) participants and setting; (3) research instrumentation; (4) instructional program; (5) course content and delivery procedures; (6) summary of study phases; and (7) treatment of the data.

Research Questions

1. Is there a difference in academic achievement between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?

2. Is there a difference in course satisfaction between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?

3. Is there a difference in the frequency and quality of discussions between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?
Description of the Participants and Setting

Participants

All study participants were preparing to become general education teachers in elementary or secondary schools. Additionally, all participants were enrolled in ESP444, *Teaching Exceptional Children in the Regular Classroom*. Twenty-two students were enrolled in a Web-based section of the course and twenty-two students were enrolled in a traditional face-to-face section of the course. Students had the option to enroll in either the Web-based or traditional section of the course. Thus, the group assignment in this study was self-selected. The average student demographic characteristics of the participants in the traditional section are summarized in Table 3.1 (i.e., gender, age range, year in school, academic major, and grade point average). The average student demographic characteristics of the participants in the Web-based section are summarized in Table 3.2 (i.e., gender, age range, year in school, academic major, and grade point average).

Setting

This study took place at the University of Nevada, Las Vegas (UNLV), a large metropolitan institution located in the southwest region of the United States. Two undergraduate sections of ESP444, *Teaching Exceptional Children in the Regular Classroom*, were selected for this study. Students enrolled in the traditional section of the course met on the UNLV campus in a classroom within the College of Education. The classroom was set up in a traditional manner, in which the instructor stood at the front of the room providing the lecture and students sat in desks, situated in rows. The students rearranged their desks into groups for the discussion component of the course. Students enrolled in the Web-based version of the course were required to attend one meeting on-campus at the beginning of the semester to take a pretest and one meeting on-
campus at the end of the semester to take a posttest and complete a survey. Thus, the
students in the Web-based group attended campus two times, but were not required to
come to campus for any face-to-face course instruction. Instead they accessed the course
instruction through computers.

Table 3.1

Traditional student demographics

<table>
<thead>
<tr>
<th>Traditional Subjects</th>
<th>Gender</th>
<th>Age Range</th>
<th>Year in School</th>
<th>Academic Major</th>
<th>Grade Point Range</th>
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</table>

Mode age range: 18-24
Mode GPA range: 3.1-3.5

List of Academic Majors:
EE: Elementary Education
SE: Secondary Education
ME: Music Education

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Table 3.2

Web-based student demographics

<table>
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<th>Web-Based Subjects</th>
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<th>Year in School</th>
<th>Academic Major</th>
<th>Grade Point Range</th>
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<td>Junior</td>
<td>EE</td>
<td>3.1-3.5</td>
</tr>
<tr>
<td>S9</td>
<td>F</td>
<td>25-35</td>
<td>Senior</td>
<td>SE</td>
<td>3.6-4.0</td>
</tr>
<tr>
<td>S10</td>
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<td>Senior</td>
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<td>3.6-4.0</td>
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<td>S11</td>
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<td>S12</td>
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<tr>
<td>S14</td>
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<td>Junior</td>
<td>ME</td>
<td>3.1-3.5</td>
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<tr>
<td>S15</td>
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<td>Senior</td>
<td>EE</td>
<td>3.6-4.0</td>
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<tr>
<td>S16</td>
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<td>18-24</td>
<td>Senior</td>
<td>SE</td>
<td>2.6-3.0</td>
</tr>
<tr>
<td>S17</td>
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<td>Junior</td>
<td>AE</td>
<td>3.1-3.5</td>
</tr>
<tr>
<td>S18</td>
<td>M</td>
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<tr>
<td>S19</td>
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<td>EE</td>
<td>2.6-3.0</td>
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<tr>
<td>S20</td>
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<td>Senior</td>
<td>SE</td>
<td>2.6-3.0</td>
</tr>
<tr>
<td>S21</td>
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<td>Junior</td>
<td>EE</td>
<td>3.1-3.5</td>
</tr>
<tr>
<td>S22</td>
<td>M</td>
<td>18-24</td>
<td>Senior</td>
<td>EE</td>
<td>3.6-4.0</td>
</tr>
</tbody>
</table>

Mode age range: 25-35
Mode GPA range: 3.1-3.5

Academic Majors:
- EE: Elementary Education
- SE: Secondary Education
- AE: Art Education
- ME: Music Education
- HE: Health Education

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Research Instrumentation

Pretest/Posttest

The researcher used questions from the instructor’s manual for the course textbook *Including Students With Special needs: A Practical Guide for Classroom Teachers* (Friend & Bursuck, 2002). The manual contains a test bank of questions for each chapter’s course content. Five questions from each of the thirteen chapters were randomly selected. The pretest and posttest consisted of the same 65 multiple-choice questions (see Appendix A).

Participant Survey

A survey was used to measure the Web-based student’s perceptions of the course content, experience and their learning outcomes. The survey included a 4-point Likert scale developed by the researcher with assistance from a specialist in the university’s Center for Survey Research. The survey consisted of demographic information, statements regarding student perception of their knowledge, and statements to measure participant perceptions. For statements related to general course perceptions, the participant circled the number that indicated the degree of agreement or disagreement. For statements related to specific assignment perceptions, the participant circled the number that indicated the degree of usefulness (see Appendix B).

Discussions

The researcher employed a qualitative research approach to analyze and understand the frequency and quality of discussions in the traditional section and the web-based section. Quantitative data are based on a single, objective certainty (Merriam, 1988). In contrast, qualitative research can have multiple assumptions. “Qualitative
research is explorative, inductive, and emphasizes process rather than ends (Merriam, 1988, p. 17).” Patton (1990) describes qualitative research as

...an effort to understand situations in their uniqueness as part of a particular contest and the interactions there. This understanding is an end in itself, so that it is not attempting to predict what may happen in the future necessarily, but to understand the nature of that setting – what it means for participants to be in that setting, what their lives are like, what's going on for them, what their meanings are, what the world looks like in that particular setting - and in the analysis to be able to communicate that faithfully to others who are interested in that setting (Patton, 1990, p.1).”

The intent of the researcher was to understand the quality of discussions using the same course content taught in different settings (i.e. traditional and Web). The intent of the study was to bring a better understanding to the reader about the differences in discussions, if any, using a different medium to deliver the discussion information.

Each group was set up in focus groups. According to Weiss (1998), the focus group was developed by market research to learn about consumers’ reactions to products or services with the basic feature being that people are brought together and the researcher raises a question for them to discuss. The focus group allows the researcher to observe the interactions in the group. This method was employed by the researcher to analyze the discussions in both groups. The Web-based and traditional groups were given questions (see Appendix C) to discuss during each class session. For the traditional course, the researcher used a tape recorder to record class discussions and then the tapes
were transcribed. For the Web-based course, there is a tool that generates posted discussion items from each individual, which the researcher printed directly from the computer.

Once the traditional course tapes were transcribed and the Web-based groups printouts were completed, the researcher employed a system of coding to develop themes. According to Weiss (1998), “coding is the practice of taking narrative information and slotting it into a set of categories that capture the essence of their meaning.”

Measurement Reliability

Interscorer reliability for the pretest/posttest and participant survey was conducted to ensure correct scoring. The primary researcher and the research assistant independently scored all of the pretests and posttests and participant surveys. To ensure interscorer reliability for the discussions, the research assistant reviewed 25% of the discussion analyses. The formula used to determine reliability was agreements + by agreements + disagreements x 100.

Instructional Program

Section 1: Traditional

Students enrolled in Section 1 were provided traditional instruction in a university class that was taught on the university campus. Students had to attend an undergraduate course, ESP444 Special Education Techniques in a General Education Setting, which is an introductory course within the College of Education for all general education majors. This class was scheduled on the university campus during a 5-week summer session and met three times a week.
Section 2: Web-Based

Students enrolled in Section 2 received instruction during the same summer session as students in Section 1. The same instructor taught this course Section, but the students were provided all of their coursework at a distance using the Web. The course platform used to set up and provide course materials was Web Course Tools (WebCT). Murray Goldberg formed WebCT in 1997. WebCT provides a number of learning tools, including an online discussion board, course content searches, a course calendar, electronic mail, auto-marked quizzes, navigation tools, access control, grade maintenance and distribution, and student progress (Marsh, Price, & McFadden, 2000). WebCT provides a standard way to organize course materials and integrate multimedia presentations in course delivery. It is designed to support collaborative learning, knowledge building, and multiple representations of ideas and knowledge structures (LaMaster & Morley, 1999).

Course Textbook

The required textbook for both course sections was Including Students with Special Needs: A Practical Guide for Classroom Teachers by Friend and Bursuck (2002). This third edition text offers a useful foundation in special education/inclusion and helps the student apply that information in specific classroom situations. Included in the text are strategies for teaching students with disabilities in inclusive settings and examining the needs of students with low-incidence and high-incidence disabilities at both the elementary and secondary levels. A brief summary of the chapters included in this textbook is provided in Appendix D.
Course Materials, Assignments and Delivery Procedures

Students in the traditional and Web-based course both received the same syllabus (see Appendix E). Students in the traditional section were required to read the book and come to class prepared to discuss the material. Students in the Web-based course were required to read the book and discuss the material on the discussions page of WebCT.

Delivery Procedures

The method used to present course materials to both groups included PowerPoint presentations that follow the chapters in the course text. These presentations were presented orally and as handouts to the students in the traditional course. Students in the Web-based section were provided PowerPoint handouts on WebCT that could be downloaded and printed. Students in the Web-based course did not receive oral instruction related to the PowerPoint handouts.

Videos

Thirty-minute snapshot videos were used to provide real-life experiences of students with disabilities. The students in the traditional course viewed the videos in class with the use of a VCR and then discussed them. The students in the Web-based course viewed the videos through the use of real time player and were instructed to discuss the videos using threaded discussion on WebCT.

Study guides

The same study guides were presented to both classes that aligned with the appropriate chapter in the text. These study guides included important information as determined by the course instructor. These study guides also included questions to guide discussions. Students in the traditional course were given the opportunity to discuss these
questions in class. Students in the Web-based course were required to post responses to
the questions and pose other questions to guide threaded discussion on the discussions
page of WebCT.

Reflections

Students in both sections were required to complete two reflection papers during
the semester. The first reflection paper required students to present information,
including: their name/current role (i.e., teacher, student); grade levels (i.e., currently
teaching or ultimate certification); certification/s currently held; reasons for taking ESP
444, *Teaching Exceptional Children in the Regular Classroom*; what they knew about
students with disabilities and/or the field of special education; what they wanted to learn
about students with disabilities and/or the field of special education; and something
special about themselves. The first reflection was assigned during Session 1 and due
during Session 2 for both groups. The traditional group had to present their
reflection/information to the whole class. The Web-based group posted their reflection to
the discussions page for other class members to view. The second reflection paper was
assigned during Session 7 and due on Session 9. Students were asked to reflect and write
about legal, legislative, educational, and personal issues in terms of what is supposed to
be “done” considering individuals with disabilities. The students were to reflect on
choices they would make related to instructional components that have potential to
enhance or minimize learning opportunities.

Case Studies

Another component of the course involved the use of case studies. Two case
studies were presented to both sections and the students were divided into groups. There
was an elementary and secondary case study. Students were placed into groups
according to their certification area. Directions to complete the case studies were provided to all the groups. In the groups they were to discuss the case study and come to a consensus about how to handle the situation using the INCLUDE strategy. Each group provided a written response to the case study. Students in the traditional class were given one hour in class to complete this assignment. If the groups could not finish during class time, they had to agree on a time to meet and finish. The Web-based group had the same cases posted on WebCT for them to view and they were organized in groups on the discussions page. It was the group members' responsibility to figure out how they were going to discuss the cases and write the paper. The groups were able to use asynchronous conversation, via discussion page; or synchronous conversation, via a chat room. The first case study was assigned during Session 5 and due Session 8. The second case study was assigned on Session 11 and due during Session 13.

Low-Incidence Activity

Students were required to participate in another group activity. Students were placed in groups of two or three and each group was assigned one Low-Incidence Disability or “at-risk” group to explore in depth and present the groups' findings to the entire class via group presentations. Students in the traditional group presented their group material during the class session. They could use visuals of their choice (i.e. PowerPoint, overhead, poster) and they were required to provide handouts to all of their classmates. The Web-based group was required to present their information on the student presentations page of WebCT. The presentations page of WebCT consists of the students designing a HTML page and uploading it for the whole class to view on the course site. The low-incidence assignment was assigned during Session 12 and due on session 14 for both groups.
Midterm Activity

The midterm activity served as a formative evaluation to assess where the students were at the midpoint (Session 9) of the course. This activity consisted of three parts. The activity was a take home assignment for the students in the traditional section and the assignment was posted for the Web-based group on the course content page of WebCT. The traditional group received instructions orally and in written format; whereas, the Web-based group only received instructions in written form. Part 1 consisted of 16 questions. The students were required to answer the questions using any course materials and other resources (e.g., articles). Part 2 consisted of the questions with the answers. Students were instructed to take the test and then grade their answers. Parts 1 and 2 were not handed in to the instructor. Part 3 was the graded section of the midterm, and was somewhat dependent on completing Parts 1 and 2 thoughtfully. In 1-2 double-spaced pages, students were required to respond to the following (1) provide evidence of scoring Part 1 (i.e. # correct/incorrect); (2) analyze areas of strength and/or weakness (i.e. what do you know, what do you still need to learn?); (3) reflect on strengths and/or weaknesses (i.e. why do you think you know or do not currently know "xyz"...?); and (4) develop a Plan of Action (i.e. what do you plan to do to enhance your knowledge and dispositions regarding special education both during this course and in the future?)

Philosophy Statement

In both the traditional and Web-based course, the students were provided with guidelines to write a statement of their philosophy. This assignment provided students with an opportunity to synthesize their learning about individuals with exceptional learning needs. The students were asked to reflect on their experiences from
recollections and reflections, interpret related literature, and discuss with colleagues then
write a 1-2 page paper on: (1) their philosophy regarding the education of individuals
with exceptional learning needs; (2) rationale for their philosophy; and (3) implications of
their philosophy on future practice. This assignment was given to both groups during
Session 7 and it was to be handed in the final class session, Session 15.

Summative Activity

The final was not a traditional test. It was a Summative Activity, designed to enable the students to reflect on the course and knowledge they gained. Students were required to design a preliminary course of action for their future practice with students who have special needs and/or individual learning differences. This assignment consisted of the students identifying three issues (e.g., inclusion of a student with special needs) and considering implications for best practice. Students in the traditional course were provided explicit oral and written instructions. Students in the Web-based course were provided the instructions for the assignment in written form during session 14 and due session 15. The traditional group was given thirty minutes during session 14 to begin this assignment and was instructed to complete the assignment for submission during session 15.

Summary of Study Phases

Phase 1: Study Preparation

Phase 1 involved several tasks designed to prepare for the study: Human subject approval and participant permission, pilot testing of the survey instrument, and research assistant training.
**Human subjects approval and participant permission.** Human subjects approval was obtained from the Office of Sponsored Programs at University of Nevada, Las Vegas. Next, students enrolled in both courses were provided with information regarding the study and were given the opportunity to participate. Those who agreed to participate signed a consent form, which was completed during the first class session for the traditional group. The researcher provided the Web-based group a choice of times to come to the university to sign the form.

**Pilot testing of the survey instrument.** A pilot test of the survey was conducted to assess the clarity of the instrument and identify any needed changes. The survey was administered to 27 undergraduate students who were enrolled in an early childhood class in the Department of Special Education. This course was selected to avoid duplication in course enrollment among potential study participants. The students enrolled in the early childhood course would not be candidates for enrollment in ESP 444, *Teaching Exceptional Children in the Regular Classroom*. Procedures for the pilot test of the participant survey were as follows:

1. Students were informed about the research study involving the administration of a survey to students in an undergraduate course.
2. Students were given the opportunity to participate or not and the researcher explained that their feedback regarding ways to improve the survey would be very beneficial.
3. Students whom agreed to participate were provided with a copy of the survey.
4. Students were instructed to note any survey items/questions that were confusing and make suggestions directly on the survey to clarify the item.
Based on the pilot testing, changes were made in question order, wording, and clarification in directions for each survey section.

**Research assistant training.** For purposes of this study, a research assistant was trained in the procedures involved in this study, including: (1) administering and scoring the pre- and posttests, (2) administering and scoring the surveys, (3) looking at the student discussion transcripts from the traditional course and student discussion printouts from the Web-based course. The training for procedures one and two were conducted in a one-hour session the week prior to initiation of the course. The training for procedure three was completed upon completion of the data collection.

To evaluate the interrater agreement the research assistant and researcher scored the pre-/posttests and surveys until a reliability of at least 80% was obtained. Two steps were employed to evaluate interrater reliability for the discussions. First, the researcher demonstrated the method of coding and selecting emergent themes using the transcripts for Sessions 1-2. Second, the researcher and research assistant independently evaluated Sessions 3 and 4 discussion transcripts to demonstrate reliability.

**Phase 2: Preassessment**

During the first session, the students in the traditional course who agreed to participate in the study were administered a pretest to find out prior knowledge about special education content. The pretest involved 65 multiple-choice items that took one-hour to complete. The students in the Web-based course who agreed to participate in this study were provided three time frames to come to the university campus to complete the pretest. To evaluate interrater reliability, the researcher and research assistant both administered and scored the pretests for both course sections.
Phase 3: Course Implementation

Instruction for the traditional course consisted of 13 sessions of course material presented in a face-to-face setting. Instruction in the Web-based section involved the students accessing the course content through their computer. The same teacher administered instruction for both sections. All students were required to read the assigned material for course session preparation, participate in discussions, and complete course assignments.

Phase 4: Post Assessments

In the final session, the students were given a posttest. The posttest was the same as the pretest administered at the beginning of the course. In the traditional course, students completed the posttest during final course session. In the Web-based course students were given the option of three time frames to come to the university and take the posttest. Both the researcher and research assistant administered and scored the entire test.

In the final session, the traditional students completed a survey administered by the research assistant. In the Web-based course, students completed the survey during the scheduled time they came to campus for their posttest. Both the researcher and research assistant scored the surveys.

To measure the frequency and quality of discussions, the researcher and research assistant viewed the transcriptions for the traditional group. For the Web-based group, a copy of threaded discussions were printed and analyzed by the researcher and research assistant.
Treatment of the Data

Research Question 1: Is there a difference in academic achievement between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?

A series of analyses of variance (ANOVA) were performed to determine if there were any significant mean differences between pretests and posttests within group and between groups. The test consisted of 65 questions; each question was worth one point. A percentage score was calculated for each subject.

Research Question 2: Is there a difference in course satisfaction between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?

Subject satisfaction regarding the course content and design was reported for both the traditional course and the web-based course. The mean rating for the class was calculated for each item on the survey. Paired samples t-tests were employed to analyze if there were any mean differences in course ratings between the two groups.

Research Question 3: Is there a difference in the frequency and quality of discussions between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?

Student frequency and quality of discussion were reported. Data were gathered from an analysis of discussion transcripts and participant observations. As a result of ongoing analysis of the data, emergent themes were developed to identify, if any, similarities or differences emerged for the two course sections.
CHAPTER 4

DATA ANALYSIS

The purpose of this study was to investigate the effectiveness of using Web-based instruction compared to traditional instruction in an introductory undergraduate course in special education. Data were collected to answer three research questions related to achievement, student satisfaction, and frequency and quality of discussions in a Web-based course versus a traditional course. Interscorer reliability for the various measures in this study is reported in the last section of chapter 4. The first three sections of this chapter are organized by research question. Each section provides the results of the statistical analysis of data obtained in the study.

Research Questions

Student Achievement

Is there a difference in academic achievement between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?

A pretest and posttest were used to assess student knowledge before and after the course. All subjects for the Web-based section and the traditional section participated in the pretest and posttest, which contained the same 65 multiple-choice questions. All subjects took the pre- and posttest under researcher supervision.
To determine if there was a significant mean difference within the groups from pretest to posttest, a one-way analysis of variance (ANOVA) was conducted. The first ANOVA was completed for the traditional group. The independent variables were the scores on the pretest and posttest; the dependent variable was the method of instruction (traditional). A significant difference was noted $F(1,42) = 31.93$, $p=.000$, indicating that the students in the traditional course performed significantly higher on the posttest than the pretest (see Table 4.1 for mean and standard deviation).

To determine if there was a difference in means scores within the Web-based group, a one-way analysis of variance (ANOVA) was conducted to evaluate the relation between the Web-based pretest and posttest. The independent variables were the scores on the pretest and posttest; the dependent variable was the method of instruction (Web-based). A significant difference was noted $F(1,42) = 14.99$, $p=.000$, indicating that the students in the Web-based course performed significantly higher on the posttest than the pretest (see Table 4.1 for mean and standard deviation).

Table 4.1
ANOVA for pre- and posttest within groups

<table>
<thead>
<tr>
<th>Course</th>
<th>Pretest $M$ (SD)</th>
<th>Posttest $M$ (SD)</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td>33.23 (4.24)</td>
<td>40.09 (4.27)</td>
<td>31.93</td>
<td>.000*</td>
</tr>
<tr>
<td>Web-based</td>
<td>32.45 (3.80)</td>
<td>37.86 (4.53)</td>
<td>14.99</td>
<td>.001*</td>
</tr>
</tbody>
</table>

*p<.05

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To establish if there were any mean differences between pretests and posttest between groups the researcher employed a one-way analysis of variance. The first ANOVA conducted was for the pretest between groups. The independent variable was method of instruction (traditional vs. Web-based) and the dependent variable was pretest. The results indicated there was no significant difference $F(1,42) = .326, p = .571$ (see Table 4.2 for mean and standard deviation). Because there was no significant difference between the groups for their pretest, we can assume that both groups began instruction with the same knowledge.

To measure if there was a mean difference between groups for the posttests the researcher employed an analysis of variance. The independent measure was type of instruction (traditional vs. Web-based) and the dependent measure was score on the posttest. The results indicated that there was no significant difference in posttest scores, $F(1,42) = 3.112, p = .09$ (see Table 4.2 for mean and standard deviation). We can assume that both groups had the same amount of knowledge at the posttest.

Table 4.2
ANOVA for pre- and posttest between groups

<table>
<thead>
<tr>
<th>Test</th>
<th>Traditional M (SD)</th>
<th>Web-based M (SD)</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>33.23 (4.24)</td>
<td>32.45 (3.80)</td>
<td>.571</td>
<td>.598</td>
</tr>
<tr>
<td>Posttest</td>
<td>40.09 (4.27)</td>
<td>37.86 (4.53)</td>
<td>3.112</td>
<td>.085</td>
</tr>
</tbody>
</table>
Student Satisfaction

Is there a difference in course satisfaction between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?

Student satisfaction regarding the course content was reported for both the traditional course and the web-based course. For analysis purposes, the survey was separated into three sections.

The first section included two questions regarding student perceived knowledge before and after the course that was answered on a 4-point Likert scale of 1 being “no knowledge” to 4 being “expert”. A paired samples t-test was conducted to find out if there were significant mean differences in each group’s evaluation of themselves before and after. Students in the traditional course rated their knowledge after the course ($M = 3$) significantly higher than before the course ($M = 1.73$), $t(22) = -9.459$, $p=.000$. Students in the Web-based course rated their knowledge after the course ($M = 3$) significantly higher than before the course ($M = 1.86$), $t(22) = -9.514$, $p=.000$. A t-test was conducted and no significant differences were found in the traditional rating before ($M = 1.73$) and the Web-based rating before ($M = 1.86$), $t(22) = -.767$, $p=.45$. Likewise, no significant difference was found in the traditional rating after ($M = 3$) and the Web-based rating after ($M = 3$), $t(22) = .000$, $p=1.0$.

The second part of the survey included the students agreeing or disagreeing with a set of statements related to the course. The statements were based on a 4-point Likert scale 1 being “strongly agree” to 4 being “strongly disagree”. A paired samples t-test was employed for each question and there were no significant mean differences between the groups. The first statement asked the student if the course helped them to

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accommodate students with special needs in the classroom. The traditional group \((M = 3.41)\) and the Web-based group \((M = 3.59)\) indicated that they agreed with the statement. The traditional group \((M = 3.50)\) and the Web-based group \((M = 3.59)\) both felt they would recommend this course to others. Both groups, traditional \((M = 3.32)\) and Web-based \((M = 3.36)\), indicated they would take other courses in special education.

Regarding their perception of understanding the course concepts and ideas, the traditional group \((M = 3.41)\) and the Web-based group \((M = 3.68)\) both indicated they agreed with the statement. Both groups indicated they were willing to participate in class discussions, traditional \((M = 3.5)\) and Web-based \((M = 3.45)\).

The last portion of the survey included 11 questions specifically pertaining to the course assignments. The questions were based on a 4-point likert scale “not very useful” to “very useful”. A paired sample \(t\)-test was conducted to find out if there was any significant mean difference between the two groups related to overall course assignments.

No significant mean difference was noted for course assignments between the traditional and the Web-based group. The overall mean for course assignment satisfaction indicated that both groups were satisfied with the course assignments, traditional \((M = 3.24)\) and Web-based \((M = 3.28)\). There were two assignments that had a significant difference in mean scores, see Table 4.3 for analysis of each course assignment item. The traditional group reported a significantly higher satisfaction rating than the Web-based group regarding the PowerPoint notes and the videos.
Table 4.3

Group means of paired samples t-tests for traditional and Web-based instructional group for each course assignment

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Traditional M</th>
<th>Web-based M</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Text</td>
<td>3.00 (.76)</td>
<td>2.86 (.83)</td>
<td>.530</td>
<td>.50</td>
</tr>
<tr>
<td>PowerPoint Notes</td>
<td>3.59 (.50)</td>
<td>3.14 (.71)</td>
<td>2.339</td>
<td>.03*</td>
</tr>
<tr>
<td>Study Guides</td>
<td>3.10 (.70)</td>
<td>3.32 (.86)</td>
<td>-0.894</td>
<td>.38</td>
</tr>
<tr>
<td>Videos</td>
<td>3.73 (.55)</td>
<td>3.14 (.83)</td>
<td>2.524</td>
<td>.02*</td>
</tr>
<tr>
<td>Discussions</td>
<td>3.32 (.89)</td>
<td>3.45 (.67)</td>
<td>-0.513</td>
<td>.61</td>
</tr>
<tr>
<td>Reflections</td>
<td>2.82 (.85)</td>
<td>3.18 (.73)</td>
<td>-1.359</td>
<td>.19</td>
</tr>
<tr>
<td>Case Studies</td>
<td>3.45 (.67)</td>
<td>3.50 (.60)</td>
<td>-0.237</td>
<td>.82</td>
</tr>
<tr>
<td>Low-incidence Activity</td>
<td>3.23 (.81)</td>
<td>3.36 (.66)</td>
<td>-0.646</td>
<td>.53</td>
</tr>
<tr>
<td>Midterm Activity</td>
<td>3.14 (.83)</td>
<td>3.50 (.60)</td>
<td>-1.702</td>
<td>.10</td>
</tr>
<tr>
<td>Philosophy Statement</td>
<td>3.14 (.83)</td>
<td>3.23 (.61)</td>
<td>-0.358</td>
<td>.72</td>
</tr>
<tr>
<td>Summative Activity</td>
<td>3.09 (.77)</td>
<td>3.43 (.60)</td>
<td>-1.503</td>
<td>.15</td>
</tr>
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</table>

*p<.05

Discussion

Is there a difference in the frequency and quality of discussion between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?
Frequency of Traditional Group Discussions

To measure the frequency of discussions in the traditional group, the number of student comments, follow-up comments, and off-topic comments were collected related to the discussion questions presented to the students for each session. Discussion comments included all comments made during the reported session. Follow-up comments included student statements, responses, and/or questions to other students. Off-topic comments included statements or questions, which had no relation to the session topic or discussion questions presented. Class session, number of students participating in the discussion, and time on-topic out of 30 minutes are reported in Table 4.4.

Table 4.4

Frequency data for the traditional group discussions

(N = 22)

<table>
<thead>
<tr>
<th>Session(s)</th>
<th>Students</th>
<th>Time on-topic out of 30 minutes (% of on-topic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>18</td>
<td>23/30 (76.6%)</td>
</tr>
<tr>
<td>3</td>
<td>21</td>
<td>27/30 (90.0%)</td>
</tr>
<tr>
<td>4</td>
<td>21</td>
<td>20/30 (66.6%)</td>
</tr>
<tr>
<td>5-7</td>
<td>22</td>
<td>26/30 (86.6%)</td>
</tr>
<tr>
<td>8</td>
<td>21</td>
<td>13/30 (43.3%)</td>
</tr>
<tr>
<td>10-12</td>
<td>22</td>
<td>28/30 (93.3%)</td>
</tr>
<tr>
<td>13-14</td>
<td>22</td>
<td>9/30 (30.0%)</td>
</tr>
</tbody>
</table>

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Frequency of Web-based Discussions

To measure the frequency of discussions in the Web-based group, the number of student postings, follow-up postings, and off-topic postings were collected related to the discussion questions presented to the students for each session. Postings included all posting made during the reported session. Follow-up discussions included student statements, responses, and/or questions to other students. Off-topic discussion included statements or questions posed by students, which had no relation to the session topic, or discussion questions presented. Class session, number of students participating in the discussion, number of postings made by the students, number of follow-up postings, and the number of off-topic postings are reported in Table 4.5.

Table 4.5
Frequency data for the Web-based group discussions

<table>
<thead>
<tr>
<th>Session(s)</th>
<th>Students</th>
<th>Total Postings</th>
<th>Follow-up Postings</th>
<th>Off-topic Postings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
<td>30</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>22</td>
<td>78</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>22</td>
<td>123</td>
<td>63</td>
<td>0</td>
</tr>
<tr>
<td>5-7</td>
<td>22</td>
<td>106</td>
<td>62</td>
<td>8</td>
</tr>
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<td>17</td>
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<td>3</td>
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<td>10-12</td>
<td>22</td>
<td>121</td>
<td>69</td>
<td>5</td>
</tr>
<tr>
<td>13-14</td>
<td>22</td>
<td>53</td>
<td>30</td>
<td>5</td>
</tr>
</tbody>
</table>
Quality of Traditional Discussions

The traditional group was divided into six focus groups for the purpose of discussions. The instructor randomly selected the focus groups. Each focus group was audio recorded and data were gathered from an analysis of the discussion transcripts and participant observations. As a result of ongoing analysis of the data, emergent themes developed. The themes were organized according to class session related to the specific guiding questions provided to the students. The discussion questions were based on the course textbook readings and snapshot videos. The instructor selected the same guiding questions for both groups. The detailed discussion questions are provided in Appendix C. The themes for the traditional group are reported in Table 4.6. In Chapter 5 there is a further analysis of some specific comparisons between the traditional and the Web-based group discussions that emerged in the study.

Quality of Web-based Discussions

The Web-based group participated in asynchronous discussions as a whole group. Data were gathered from an analysis of the threaded discussion postings. As a result of ongoing analysis of the data, emergent themes developed. The themes were organized according to class session related to the specific guiding questions provided to the students. The discussion questions were based on the course textbook readings and snapshot videos. The instructor selected the same guiding questions for both groups. The detailed questions are provided in Appendix C. The emergent themes for the Web-Based section are reported in Table 4.7. In Chapter 5 there is a further analysis of some specific comparisons between the traditional and the Web-based group discussions that emerged in the study.
Table 4.6

Emergent themes for the traditional group discussions

<table>
<thead>
<tr>
<th>Session(s)</th>
<th>Theme(s)</th>
</tr>
</thead>
</table>
| 1-2        | Behaviors are the main concern for teachers  
Contradictions about inclusion/Not enough teacher training and support  
Disruptions take away from other students  
Models are important/socialization  
Teacher burnout  
Adapting the curriculum is a concern |
| 3          | Need to have contingency plans/prepared for what might happen  
People have different strengths and weaknesses  
Time to plan  
Styles/personalities/commitment can make a difference  
Teachers do not like having other people in their room  
Expectations can be too low or too high |
| 4          | Rules should be specific, simple, short, posted in the room  
Routines are important  
Rules should depend on child, grade, age, and school  
Include strategy = checklists  
Kids help to establish rules  
Rules should be situational |
| 5-7        | Adjusting curriculum: accommodations/modifications  
Social exposure important  
Look for strengths  
Use checklists  
Help students with organization  
Use a variety of instructional materials  
Parent involvement |
| 8          | Use of different types of tests - portfolios/projects/real-life experiences  
Involving other specialists |
| 10-12      | Use planners for organization  
High expectations for all students  
Age-appropriate activities  
Rewards and consequences  
School-wide plans for discipline  
Consistency in procedures and routines  
Communicate with parents |
| 13-14      | ADD/ADHD  
Treat students with sympathy  
Teachers need lots of support  
Students can be hurtful  
Teach children about differences for acceptance  
Limited exposure to students with low-incidence disabilities |
**Table 4.7**

Emergent themes for the Web-based group discussions

<table>
<thead>
<tr>
<th>Session(s)</th>
<th>Theme(s)</th>
</tr>
</thead>
</table>
| 1-2        | Importance of social interactions  
Teacher training and support  
Achieving curriculum standards is important  
Classroom demographics are very important  
Not all special education students should be included/Skeptical about inclusion  
What happens/What are the demographics of the local school district |
| 3          | Everyone has a responsibility/Input  
All contributions are important  
Everyone needs to provide support  
Compassion/Communication/Respect  
Working well with others/Similar teaching styles |
| 4          | Student input  
Rules should be specific, limited in number and posted in classroom  
Both rewards and consequences  
Make accommodations  
Physical arrangements  
Teach about differences  
Try different strategies  
Use a variety of materials |
| 5-7        | Stereotypes – low-achieving students versus high-achieving students  
High students help low students (peer tutors/helpers)  
Fitting-in  
Make the classroom a “safe place”  
Teacher attitude  
Accommodations  
Parent input  
Student checklists |
| 8          | Modified assignments/accommodations for all students  
Assessment is important to find out where student is at/reach goals  
Use a variety of assessment (written/oral) |
| 10-12      | Positive attitude/atmosphere  
Keeping your composure  
Rewards and consequences important/Token Economy  
Class organization  
Positive reinforcers and praise  
Specific procedure/routines  
Sweets not the best choice – alternative suggested |
| 13-14      | No/little experience with low-incidence disabilities  
Need sources for help  
Important to understand the needs/Lots of accommodations  
Teach the child, not the disability  
What terms to use (handicapped, disabled, retarded)  
Labeling = stereotypes |
Interscorer Reliability

The researcher and research assistant independently scored all of the pre- and posttests to assess reliability of the scoring systems. Each subject was assessed on course content before and after the course. An agreement was obtained when both scorers recorded the same score ("0", "1", "2") for the given question. The percentage of agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. On the test questions, there were 130 agreements out of 130 opportunities (100% agreement).

Interscorer reliability for the satisfaction survey was conducted to ensure correct scoring. The primary researcher and research assistant independently scored all of the surveys. Interval agreement (i.e., $\frac{\text{Agreements}}{\text{Agreements} + \text{Disagreement}} \times 100 = \text{Percent of Agreement}$) was calculated. Interscorer reliability was 100% (see Table 4.8 for a summary of reliability measures).

Table 4.8

<table>
<thead>
<tr>
<th>Measure</th>
<th>Interscorer Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre/Posttests</td>
<td>100%</td>
</tr>
<tr>
<td>Survey</td>
<td>100%</td>
</tr>
</tbody>
</table>
CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to investigate the effectiveness of using Web-based instruction compared to traditional instruction in an introductory undergraduate course in special education. In this chapter, findings related to three research questions are discussed, conclusions are stated, and recommendations for future research are provided.

Discussion

The three research questions that were answered in this study are presented below. Following each question is a summary of the results and related discussion.

Achievement

Is there a difference in academic achievement between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?

Group mean scores for the both the traditional and Web-based subjects’ pre- to posttest scores on the achievement measure were statistically significant, indicating that both groups demonstrated gained knowledge on course material. The pretest scores for both groups indicated that there was no significant difference in student knowledge before the course began, indicating that both groups of students came into the course with the same amount of knowledge. The posttest scores also demonstrated that there was no
significant difference in the posttest scores. Significance in posttest scores for the traditional and Web-based groups was almost reached, indicating that there was a small difference in posttest scores. The mean scores indicated that the traditional group had a higher posttest score than the Web-based group. It must be stated that the traditional students started with a slightly higher pretest mean score than the Web-based group.

Another important aspect to take into consideration is the grade point average in relation to the student achievement. College grade point average (GPA), a linear combination of assigned grades from different courses, has been noted as an imperfect measure of student achievement (Lei, Bassiri, & Schultz, 2001). It is important to note there were no significant differences between groups on their pre- and posttests. Similarly there was no significant difference between groups on their self-reported grade point average (GPA) means. This may have been an indicator for both groups performing similarly on their achievement tests.

Satisfaction

Is there a difference in course satisfaction between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?

Overall, the surveys represented no significant difference in course satisfaction for both groups. As a participant observer in the traditional group, the researcher noted that students were involved during every class session. Students were attentive and alert during class sessions. The feedback from the students in the traditional class was very positive. One student stated, "I did not know a lot about special education before this course, and it has helped me realize I will have to make accommodations in my
classroom.” Another student stated, “Taking this course has me thinking about being a special education teacher.” The only negative comments noted by the researcher were made by two students in reference to how early the class was and it was hard for them to get there on time. This may be an indication that they would have preferred a later time or the Web-based course.

When discussing the advantages and disadvantages of the Web-based course, some common themes developed among the students. They enjoyed the flexibility of accessing the course anywhere, anytime and being able to complete assignments at their own pace. A few students noted they were out of town during the course and it was very helpful to be able to still complete their work. Students also commented on the idea of being able to review at anytime and noted that this helped with connecting important course information. However, everything was not positive for the Web-based course. Three students noted having technological problems. In theory, students can access the course anywhere and anytime, but there were frequent dial-up problems, which the students noted could be very frustrating. A component of the Web-based course included viewing videos, which created a problem for some of the students due to slower processor and/or slow connection speeds.

The informal discussions with the Web-Based group about their perceived effectiveness of the course revealed various things. The researcher expected to find issues dealing with frustration, feedback, contact, and the comfort level of using technology and learning the material. Many of the students stated they were excited to learn over the Web in the beginning, but it was a lot more work than they had anticipated.
Another very central issue was the lack of contact and feedback. Students felt that when they needed immediate support, it was not there.

Both groups of students expressed a positive perception of course materials. A difference in course content that was noted was the students in the Web-based group did not think the PowerPoint Notes were as useful as the traditional group. There can be numerous explanations for this phenomena, one being students stated it was hard to download the PowerPoint notes due to software issues. Another important reason regarding the difference in satisfaction with the PowerPoint Notes is that students in the traditional course relied upon the PowerPoint Notes as guides during their instruction, whereas students in the Web-based course had to self-guide through the PowerPoint notes using the book. Another significant difference noted in course content satisfaction was the videos. The traditional group rated the videos significantly higher than the Web-based group. This might be attributed to software problems because some students noted they had older computers, which either did not support the use of the video or distorted the videos.

**Discussions**

Is there a difference in the frequency and quality of discussions between students who receive Web-based instruction (WBI) and students who receive traditional instruction for an introductory special education course?

There is strong evidence in the literature (Johnson, Johnson, & Smith, 1991; Smith 1993) for the value of collaboration among peers. Students in both groups were required to collaborate in the form of discussions. The data indicated that both groups frequently had discussions, indicating that positive collaboration was happening. Four
out of the seven recorded sessions in the traditional group indicated students were on
topic for over 75% of the time and only two out of the seven sessions had below 50% of
time on-topic, which can be viewed as productive discussion time on-topic. During the
Web-based sessions, it must be noted that most of the comments made were on topic,
which can be view as productive collaboration among group members. When
investigating the quality of discussions, the researcher noted there were several similar
common themes (Table 5.1) for both groups.

Table 5.1

Common emergent themes for both groups

<table>
<thead>
<tr>
<th>Session(s)</th>
<th>Theme(s)</th>
</tr>
</thead>
</table>
| 1-2        | Teacher training and support is important  
Contradictions about inclusion  
Classroom demographics |
| 3          | Teaching styles  
Commitment/Communication/High Expectations |
| 4          | Student input  
Rules should be specific, simple, short, and positive |
| 5-7        | Social aspects  
Accommodations/modifications  
Parent involvement  
Checklists |
| 8          | Variety of assessments |
| 10-12      | Rewards and consequences  
Class organization  
Procedures and routines |
| 11-13      | Limited knowledge about students with low-incidence disabilities  
Teach children about differences  
Support is very important |
Students in the traditional course noted positive reactions to the class discussions. One student stated, “It is so nice to be able to talk with other people who have different experiences.” Another student stated, “It is nice not to just listen to you all the time, and have some interaction with each other.” Most of the students in the Web-based group had similar reactions and they liked sharing and hearing personal experiences related to the course content. A few students indicated it was hard to have discussions when they did not know with whom they were discussing with. One student said, “It was weird because I was having this online in-depth discussion with someone I had never seen before, and it felt a little creepy.”

Conclusions and Related Discussions

The first conclusion drawn from the findings in this study is that Web-based and traditional instruction resulted in similar achievement and course satisfaction levels among general education preservice teachers learning introductory special education content. This conclusion is consistent with the findings identified in the Institute for Higher Education Policy Report (Phipps & Merisotis, 1999) that learning outcomes of students in Web-based courses are similar to those of students in traditional classes and that the attitudes of the distance learners are generally positive. In fact, the survey results from the course suggest that the Web-based and traditional students both had a majority of positive thoughts about the course with some similar negative thoughts.

A principle difference between the traditional and Web-based students was demographic in nature: Web-based students were on average older than the traditional students. Also, there was a difference in terms of the average number of hours each group
spent a week on the course. The Web-based group indicated a statistically significant higher number of hours spent on the course than the traditional group. One consideration to take into account is the traditional group may not have taken into consideration the actual time spent in class; whereas, the Web-based group probably took into consideration every time they worked on the course.

The second conclusion drawn from the findings of this study is that the quality and quantity of discussion that occurs in Web-based and traditional instruction is similar when specific content-related questions are provided to structure the discussions. Educators at all levels believe that frequent, meaningful interactions between students and their teachers are important to learning and personal development. Higher education literature frequently discusses the importance of student-faculty contact (e.g., Astin, 1985, 1993, &1997; Bean & Kuh, 1984; Lamport, 1993; Pascarella, 1985). In general, the more contact between students and faculty both inside and outside the classroom, the greater the student development and satisfaction (Astin, 1993). According to Pascarella's (1985) general causal model of environmental influences on student learning and personal development student characteristics, institutional characteristics, and views of the environment determine in part the nature and frequency of student interaction, the two most important of which are peers and faculty members. All of these factors are presumed to affect the quality of the effort students expend which, in turn, affects their learning. In addition, interactions with faculty members are also thought to have direct effects on learning.
There has been some criticism that Web-based courses do not provide the level of interaction and discussion with peers and instructors that traditional classes do. In this course, both groups of students were required to participate in guided discussions and both groups participated in discussions equally well. Additionally, both groups had some similar themes developing in their conversations based on course material. Finally, both groups had frequent interactions with the instructor.

The third conclusion drawn from conducting this research is that technological support is very important when providing Web-based instruction. Overall, the data indicated that a critical factor in determining the satisfaction of Web-based learners involve the technology component. In the Web-based course, an initial sentiment was the feeling of being lost or overwhelmed because computers would not work, slow dial-up, large amount of material to download, and software compatibility issues. Psychological tolerance for this frustration as well as the instructor’s willingness to assist students with technology-related issues may influence a student’s performance in a Web-based course.

The college must be committed to providing superior and immediate technical assistance to both faculty and students consistently throughout the semester by knowledgeable technical support staff (Phipps & Merisotis, 2000 p.3). A 24-hour lab should be set up for students who are enrolled in a Web-based course to access the course with all the necessary software and technical assistance because many students stated that, even when they went to campus, there was not sufficient help and not all of the computers had the necessary programs.
Recommendations for Future Research

Life-long learning and additional certification needs have created an increase in higher education enrollment demand. Traditional institutions will increasingly turn to distance education, particularly online education, to control costs and provide access to more students (Oblinger & Katz, 2000; Wallhaus, 2000), even though research on the costs of distance education versus traditional courses give mixed results.

This study represents a contribution to the literature involving the use of Web-based instruction to disseminate special education course content to preservice teachers. Consideration of the procedures used in this study, as well as the results obtained from the study, led to the following recommendations for future study.

1. Course platforms have different tools and features to structure a Web-based course. Future research considerations should focus on comparing the WebCT course platform to other course platforms to establish if one is more effective than another.

2. There are different levels of desirable technology-related support. Future studies should compare the level of technology support needed for successful implementation of Web-based instruction.

3. The student-student interaction component of instruction is noted in the literature to be an important factor in determining the amount of course knowledge attained (Astin, 1993; Pascarella, 1985). Future research should focus on further investigation of the discussion component in a Web-based course to determine the effects on student outcomes. Specifically, future research should compare
structured discussions (e.g., question-guided) with unstructured discussions within the Web-based instruction to determine if there is a difference.

4. Some researchers have found that teaching in a distance format is less overall work than on-campus instruction (DiBiase, 2000). Others have found that distance-delivered courses take significantly more work (Visser, 2000). This may be a factor because the overall teacher role will likely change as Web-based education becomes more prevalent. Future studies investigating ways to develop and strategies to implement Web-based course material needs to be further researched and disseminated to Web-based instructors to ensure that students receive the best quality course content possible.
APPENDIX A

PRE/POSTTEST
Test Questions

1. **Least restrictive environment** is a student’s right to be educated in an environment

   a. where he or she is most likely to be socially accepted and successful
   b. where, with assistance, he or she is most likely to be academically successful
   c. that supports his or her special physical, emotional, or cognitive needs
   d. that is equivalent to his or her peers in a general education classroom

2. Which of the following is true about mainstreaming?

   a. If the student requires even minimal assistance to be academically successful, he or she should be removed from the general education classroom.
   b. Only students with mild disabilities should participate in some of the activities of a general education classroom.
   c. Students should be placed in a general education setting only when they can meet traditional academic expectations.
   d. All the students are considered mainstreamed when they receive special education assistance for no more than thirty minutes a school day.

3. A majority of students receiving special education services in public schools have

   a. learning disabilities
   b. attention deficit disorder
   c. emotional disturbances
   d. speech or language disorders

4. A student whose behavior is characterized in part by a lack of social responsiveness from a very early age is likely to be diagnosed with

   a. severe mental retardation
   b. autism
   c. hearing impairment
   d. learning disability

5. Which of the following represents a problematic, chronic pattern of behavior?

   a. Jamal isn’t able to concentrate during seatwork since his parents’ divorce.
   b. Brian’s grades in math indicate a gradual decline this grading period.
   c. Hector appears to listen intently in class, but is not able to follow through on assignments.
   d. Devon has frequently disrupted his social studies class, arguing with his teachers and peers.
6. Once unmet need have been identified, teachers should ________________.
   a. request a formal screening
   b. contact the family
   c. contact colleagues
   d. identify intervention strategies

7. The person who typically has the most detailed, day-to-day knowledge of the students’ academic, social, and physical needs within the classroom is the ____________.
   a. general education teacher
   b. special education teacher
   c. adaptive physical coordinator
   d. school psychologist

8. The purpose of the instructional assistance team is to help the general education teacher ____________.
   a. diagnosis the student’s area of need
   b. discuss and develop the students individualized instructional program
   c. conduct the student’s screening
   d. consider strategies for assisting the students

9. Which of the following is NOT a required element of an Individualized Education Program (IEP)?
   a. goals and objectives
   b. evaluation strategies
   c. instructional methods
   d. modifications needed

10. The largest percentage of students with special needs is placed in ____________ for their education.
    a. separate schools
    b. separate classes
    c. regular class
    d. resources rooms

11. “Collaboration” is best defined as a group of people ________________.
    a. working together toward a common goal
    b. discussing a common issue or concern
    c. working together in a collegial manner
    d. completing tasks in a shared environment
12. The step of the shared problem solving process in which the collaborative team considers whether an idea is feasible and will resolve the problem is ________.
   a. evaluating outcomes
   b. planning specifics
   c. proposing solutions
   d. evaluating ideas

13. When working collaboratively with parents, teachers should first try to ________.
   a. engage in shared problem solving
   b. establish regular, consistent interactions
   c. help them participate meaningful in conferences
   d. involve them in monitoring their child’s learning

14. Success of teams depends upon the ________.
   a. commitment if the members
   b. training of the members
   c. homogeneity of the members
   d. various roles undertaken by the members

15. The individual most responsible for seeing that the paraprofessional has adequate understanding of established classroom expectations is the ____________.
   a. paraprofessional
   b. special education teacher
   c. general education teacher
   d. building administrator

16. Which of the following provides the best example of a “reasonable” accommodation?
   a. Mrs. Jones develops a separate test with fewer items than one she designed for the rest of the class for Mark, a student with a learning disability.
   b. Mr. Lee writes an outline of the new science lesson, including key terminology, on the board to help Linda who is deaf.
   c. Ms. Smith spends at least half an hour each morning working one-on-one with Beth, a second grader with autism, on developing writing skills
   d. Mr. Clark produces audiotapes of all the trade books he uses in his classroom for Doug, a student who is visually impaired.
17. The primary purpose of Step 3 in the INCLUDE strategy is to ____________.
   a. identify potential mismatches within the instructional context
   b. search for activities or tasks the student can do successfully
   c. analyze student’s strengths in view of instructional demands
   d. check the effectiveness of intervention strategies implemented

18. Effectively using classroom time requires which two tasks?
   a. time spent on organizational activities and academic learning time
   b. academic learning time and managing transition time
   c. organizing classroom materials and managing transition time
   d. time spent of classroom routines and organizing classroom materials

19. When using manipulatives to enhance student learning, it is important to remember that ____________.
   a. manipulatives may interfere with student’s ability to transfer the concrete to abstract
   b. students can use manipulatives without the guidance and structure of the teacher
   c. using manipulatives only in teacher demonstrations is sufficient to reinforce concepts
   d. students should be encouraged to verbalize their use of manipulatives to clarify their conceptual understanding

20. The primary purpose of student evaluation is to ____________.
   a. determine the level of student mastery
   b. assign letter grades for report cards
   c. provide a standard of comparing students
   d. establish the effectiveness of instruction

21. Individuals within the categories of low-incidence disability typically _______.
   a. exhibit all the characteristics of the disability
   b. require narrow, specific special education services
   c. depend upon the services of a variety of specialists
   d. display similar, predictable groups of needs

22. Noticeable characteristics of students with moderate or severe cognitive disabilities include difficulty with all of the following except ____________.
   a. maintenance of acquired skills
   b. transference of skills
   c. learning basic skills
   d. combing small skills into larger ones
23. Which is the largest category of high-incidence disabilities?

a. mental retardation  
b. emotional disturbance  
c. learning disabilities  
d. speech impairments

24. Individuals whose vision ranges between 20/70 and 20/200 are __________.

a. blind  
b. myopic  
c. legally blind  
d. partially sighted

25. Which of the following diseases does not fall into the federal disability category of “other health impairments”?

a. Epilepsy  
b. Spinal Bifida  
c. Cystic Fibrosis  
d. Diabetes

26. The most common cause for traumatic brain injury typically __________.

a. child abuse  
b. birth defects  
c. accidents  
d. gun shot wound

27. During class, students with behavior and learning disabilities may frequently __________.

a. prefer to engage in creative, artistic activities  
b. adjust quickly to the social demands of their peers  
c. engage in aggressive or disruptive behaviors  
d. display lack of interest

28. Individuals with speech disorders may have life-long emotional problems because they typically __________.

a. have cognitive or developmental delays  
b. experience peer rejection  
c. prefer to be socially isolated  
d. have difficulty focusing in social situations
29. When using a behavioral contract, the consequences of student behavior are

   a. always rewarded
   b. always a punishment
   c. an alternative between rewards and punishment
   d. unimportant and not specified

30. Students who demonstrate learned helplessness benefit from

   a. self-control training
   b. behavior contracts
   c. social skills training
   d. attribution re-training

31. A disorder characterized by chronic and serious inattentiveness, hyperactivity and/or impulsivity is

   a. attention deficit hyperactivity disorder
   b. photophobic disorder
   c. neurotransmitter deficiency disorder
   d. fetal alcohol syndrome

32. The most common intervention for students with ADHD is

   a. setting up a token economy
   b. helping students with ADHD learn to monitor their own behavior through self-talk
   c. the prescription of depressant medications
   d. the prescription of psycho stimulant medications

33. Curriculum and instruction that reflects the diversity of our society is

   a. bilingual education
   b. multicultural education
   c. bilingual special education
   d. special education

34. Tracking is

   a. grouping students heterogeneously for instruction
   b. a means to raise the achievement level of students at risk
   c. grouping students by perceived ability for instruction
   d. a highly recommended strategy for teaching students at-risk
35. Generally tracking tends to ____________.
   a. give students at risk an advantage
   b. encourage high-achieving students to interact with students at risk
   c. lead to lowered expectations for students at risk
   d. lead to lowered expectations for high-achieving students

36. The two most common methods of assessments are
   a. standardized tests and teacher-made tests
   b. screening and diagnosis
   c. whole group administration and individual administration
   d. timed-tests and untimed-tests

37. __________ are basic skills necessary for performing more complex skills.
   a. Prior skills
   b. Pre-skills
   c. Post skills
   d. Primary skills

38. The civil rights movement of the 1960s directly led to which of the following pieces of legislation?
   a. Americans with Disabilities Act
   b. Education for the Handicapped Act
   c. Individuals with Disabilities Education Act
   d. Section 504, Vocational Rehabilitation Act

39. P.L. 94-142 led to the mandating of __________________________.
   a. the concept of least restrictive environment
   b. the removal of culturally biased items on tests used for placement
   c. fully-funded in-service training in special education for general education teachers
   d. access to public places for people with disabilities

40. The role of the social worker in supporting the educational needs and services of students with disabilities is to ____________.
   a. assess students social and emotional functioning
   b. determine cognitive, academic, and behavioral functioning
   c. offer knowledge about the entire school community
   d. act as a liaison between the school and the family
41. Standardized achievement tests

a. measure the level of achievement in terms of what students have been taught in the classroom
b. compare students to other students within the same classroom only
c. measure the level of achievement from the standpoint of mastery
d. are norm referenced

42. Percentile ranks

a. reflect the level of achievement from the standpoint of mastery
b. represent the percentage of students who scored at or below a given student’s score
c. indicate the grade level for which a given score was the average score in the norm group
d. represent the percentage of students who scored at or above a given student’s score

43. Probes of basic academic skills

a. are most appropriate for middle and senior high school teachers
b. consist of samples of prerequisite skills, note taking skills and time management skills
c. consist of untimed samples of academic behaviors
d. consist of timed samples of academic behaviors

44. Skills such as note taking, time management and test-taking are

a. too unique to each student to be adequately assessed
b. important, but do not have any influence on a student’s ability to successfully complete a course
c. mnemonics
d. independent learning skills

45. A common adaptation that can be made for students with problems is to review information frequently following the initial presentations of the skill, and then review less frequently as the skill is established.

a. retention
b. preskills
c. discrimination
d. seatwork
46. The amounts of background knowledge students have about content-area lesson ____________.
   a. is an important consideration for students with reading disabilities only
   b. has little influence on whether or not students can read subject matter with
      understanding
   c. is often far less important than the quality of the textbook for students’
      understanding of the material
   d. is often just as important as the instructional presentation for students’
      understanding of the material

47. ___________ encourage students to make predictions about what they are about to
    read.
   a. Graphic organizers
   b. Concept maps
   c. Anticipation guides
   d. Planning think sheets

48. When written directions for students with disabilities are difficult, ___________
   a. skip the assignment all together
   b. add practice items you can do with the whole class
   c. keep them the same, this prepares students for the real world
   d. allow students to struggle before giving them help

49. Strategies for taking notes and preparing for tests pertain to ___________
   a. self-advocating
   b. gaining information
   c. retrieving information
   d. storing information

50. Skills that help students set realistic school or life goals and develop and carry out
    a plan to meet those goals are ____________.
   a. self-advocacy skills
   b. preskills
   c. retrieval skills
   d. preparatory skills

51. Teachers can support students in acquiring self-advocacy skills by ____________
   a. adopting an autocratic teaching style in class
   b. forcing them to look out for themselves or suffer the consequences
   c. emphasizing students’ strengths
   d. setting realistic goals for them
52. A graphic organizer designed to help students organize their writing is a _______.
   a. study guide
   b. pattern guide
   c. grammar guide
   d. sighted guide

53. Students watch and check themselves to make sure that targeted behaviors have been performed with _________.
   a. self-questioning
   b. self-reinforcement
   c. self-monitoring
   d. self-instruction

54. Giving students a practice test _________.
   a. helps to familiarize the class with the test format
   b. tends to make students with disabilities more anxious about the upcoming test
   c. is generally not a good idea unless the test material is quite complicated
   d. biases the “real” test’s results

55. When modifying test construction for students with disabilities, _________.
   a. eliminate all multiple-choice questions; they are too hard.
   b. reduce the number of possible choices on multiple-choice tests
   c. stress fill in the blank items; they require less reasoning
   d. use lengthy matching questions; they are easier for the students to do.

56. Teachers use a ________ to provide information to students and their parents.
   a. daily activity log
   b. grading contract
   c. modified course syllabi
   d. report card

57. Performance-based assessment _________.
   a. relies exclusively on reading and writing
   b. measures bits of knowledge that students possess
   c. focuses on learning products
   d. measures what students can do with knowledge
58. Which of the following is a true statement regarding “discipline”?

a. Discipline is never an end in and of itself.
b. Discipline has its roots in the word “disciple” which means “obedient one.”
c. Discipline issues are about teacher control and power.
d. Teachers are far more likely to refer students for discipline problems when they are from the same culture as the teacher.

59. A strategy for helping students with cognitive disabilities who have difficulty transitioning between activities is __________.

a. make low demand requests first  
b. the Transition Behavior Game  
c. catch ‘em being good  
d. Token Economy

60. Portfolio assessments __________.

a. must contain authentic tasks  
b. reflect the student’s interests and not the interests of parents or teachers  
c. emphasize student test scores  
d. must include evidence of students self-reflection

61. An increase in behavior to avoid a response is the result of __________.

a. removal punishment  
b. satiation  
c. positive reinforcement  
d. negative reinforcement

62. Holly, a first grade student, got very angry and slapped her classmate across the face. Holly’s teacher told her to sit in the chair in the quiet corner of the room for a few minutes where Holly could not take part in the art project. Holly’s teacher used a punishment strategy called __________.

a. extinction  
b. response cost  
c. time out  
d. overcorrection

63. The __________ gets the group started on its task and facilitates its work.

a. leader  
b. encourager  
c. monitor  
d. recorder
64. Which of the following is a true statement regarding effective feedback?

   a. Feedback should focus on the personality of the person.
   b. Feedback should describe what the person wishes the other person had done.
   c. Feedback should be general and as broad as possible.
   d. Feedback should take place immediately after the group activity.

65. Behaviors that include accurately recognizing and responding to emotions expressed by others and initiating helpful acts are ________________.

   a. academic skills
   b. emotional behaviors
   c. social skills
   d. cognitive behaviors
Survey

Gender: Female  Male

Age: 18-24  25-35  36-45  46+

Year in School: Freshmen  Sophomore  Junior  Senior  Other ________________

Academic Major: ______________________________________

Current Grade Point Average (GPA): <2.0  2.0-2.5  2.6-3.0  3.1-3.5  3.6-4.0  4.0+

At the beginning of this course, rate your knowledge of Special Education
Where 1 is "no knowledge" and 4 is an "expert": (circle only one)
1  2  3  4

At the end of this course, rate your knowledge of Special Education
Where 1 is "no knowledge" and 4 is an "expert": (circle only one)
1  2  3  4

How much time did you spend on this course material per week?
Less than 1 hr  1-2 hours  3-4 hours  5-6 hours  7+ hours

To what extent do you agree or disagree with each of the following statements: (circle only one appropriate response per question)

This course has helped me learn how to accommodate children with special needs in the classroom.
Strongly Disagree  Disagree  Agree  Strongly Agree
1  2  3  4

I would recommend this course to others.
Strongly Disagree  Disagree  Agree  Strongly Agree
1  2  3  4

I would take other courses in special education.
Strongly Disagree  Disagree  Agree  Strongly Agree
1  2  3  4
I understood the ideas and concepts taught in this course.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</table>

I was willing to participate in class discussions.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tbody>
</table>

To what extent was each of the following COURSE ASSIGNMENTS effective in increasing your knowledge of the subject material in this class?

*Please rate each of the following from 1 to 4: (circle only one response per question)*

**COURSE TEXT**

1=Not very useful 2 3 4=very useful

**POWERPOINT NOTES**

1=Not very useful 2 3 4=very useful

**STUDY GUIDES**

1=Not very useful 2 3 4=very useful

**VIDEOS**

1=Not very useful 2 3 4=very useful

**DISCUSSIONS**

1=Not very useful 2 3 4=very useful

**REFLECTIONS**

1=Not very useful 2 3 4=very useful

**CASE STUDIES**

1=Not very useful 2 3 4=very useful

**LOW INCIDENCE ACTIVITY**

1=Not very useful 2 3 4=very useful

**MIDTERM ACTIVITY**

1=Not very useful 2 3 4=very useful

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STATEMENT OF PHILOSOPHY
1=Not very useful  2  3  4=very useful

SUMMATIVE ACTIVITY
1=Not very useful  2  3  4=very useful
APPENDIX C

DISCUSSION QUESTIONS
Discussion Questions

Sessions 1-2:

Discuss Josh, Greg, and Tonya.
What were the special education teacher’s main concerns?
What were the general education teacher’s main concerns?
What were the administration concerns?
What were some student strengths and weaknesses?
What educational supports were necessary to facilitate inclusion?

Session 3:

Who are your Professional Partners?
What do you know/need to know about them?
What do they need to know about you?
What strengths do you bring to the process of Collaboration?
Are there skills/dispositions that you need to address to be a successful collaborator?
How do we, as teachers, go about making parents and the students with disabilities valuable and valued members of the partnership team?

Session 4:

What are your basic classroom rules? How are they stated? Written? Oral? Simple? How many rules do you think is appropriate?
How can the INCLUDE strategy work to help you make reasonable accommodations in the classroom?
How are you going to group for instruction? What materials are you going to use for instruction? How are you going to evaluate those materials?

Sessions 5-7:

Have you encountered individuals with mental retardation in your community? If so, what were they doing and how did you interact with them?
How might you recognize a student with a learning disability in your classroom?
How about a student with Gifts and Talents and a Learning Disability? Then, what would you do?

Session 8:

Can you think of five different ways (aside from a “paper and pencil test”) to measure student performance?
How might you modify a written assignment for a student with fine-motor problems?
How might you modify a written assignment for a student with expressive language problems?
Sessions 10-12:

When, if ever, is it appropriate to use restraint?
What might you and your students select as appropriate/natural reinforcers
(remembering to avoid primary reinforcers such as food, etc.)?
What can you do to support positive behavior in your classroom?
What can you do to reduce the occurrences of negative behavior in your classroom (i.e.,
transition time, activities, schedules, routines, academic time vs. scheduled time, etc...)?

Session 13-14

What has been your experience with individuals with low-incidence
disabilities?
Do you think we (as a society) view those with visible and “silent”
disabilities differently?
If you had or have a disability, what would you like to change in terms of
the language of the non-disabled population? You might begin with
terms/phrases such as “handicapped”, “confined to a wheelchair”, “retard”,
etc.
# Textbook Chapter Summary

*Including Students with Special Needs: A Practical Guide for Classroom Teachers*  
(Friend & Bursuck, 2002)

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Description of Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Foundation for Educating Students with Special Needs.</td>
<td>Basic terms and concepts to define special education; History of special education services; Issues related to inclusion</td>
</tr>
<tr>
<td>2</td>
<td>Special Education Procedures and Services</td>
<td>Professionals in special education; Deciding whether a student need might be a disability; Obtaining special services; Individualized Education Program (IEP) content and services</td>
</tr>
<tr>
<td>3</td>
<td>Professional Partnerships</td>
<td>Basics of collaboration; Effective applications of collaboration in schools to fostering inclusion; Working with parents and professionals</td>
</tr>
<tr>
<td>4</td>
<td>Analyzing student and classroom needs</td>
<td>The INCLUDE Strategy; Making accommodations for students with special needs; Organization for an inclusive classroom; Grouping students for instruction; Evaluation of instructional materials</td>
</tr>
<tr>
<td>5</td>
<td>Student with Low-Incidence Disabilities</td>
<td>Low-incidence categories: Accommodations for students with moderate, severe, or multiple disabilities; Accommodations for students with sensory impairments, physical, or health disabilities</td>
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<tr>
<td>6</td>
<td>Students with High-Incidence Disabilities</td>
<td>High-incidence disabilities: Accommodations for students with communication disorders; Social and emotional needs and accommodations for students with learning and behavior disabilities</td>
</tr>
<tr>
<td>7</td>
<td>Other Student with Special Needs</td>
<td>Section 504: Accommodations for students with Attention-Deficit/Hyperactivity Disorder (ADHD), culturally diverse students, at-risk students</td>
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Textbook Chapter Summary cont.

Including Students with Special Needs: A Practical Guide for Classroom Teachers  
(Friend & Bursuck, 2002)

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
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<tr>
<td>8</td>
<td>Assessing Student Needs</td>
<td>Student assessments for special education decisions; Information sources for programming for students with special needs; Curriculum-Based Assessments and the use of learning probes</td>
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<tr>
<td>9</td>
<td>Instructional Adaptations</td>
<td>Adapting basic-skills instruction and subject-area content instruction for students with special needs; Improving clarity in written and oral communication; Adaptations for independent practice</td>
</tr>
<tr>
<td>10</td>
<td>Strategies for Independent Learning</td>
<td>Encouraging student self-awareness and self-advocacy; Effectively teaching independent learning strategies in class</td>
</tr>
<tr>
<td>11</td>
<td>Evaluating Student Learning</td>
<td>Adaptations for classroom tests and report card grades for students with special needs; Benefits of Performance-Based Assessment; Using portfolio assessment for students with special needs</td>
</tr>
<tr>
<td>12</td>
<td>Responding to Student Behavior</td>
<td>Preventing discipline problems; Promoting positive group behavior; Effective responses to individual behavior; Teaching students to manage their own behavior; Using a problem-solving approach to respond to student behavior</td>
</tr>
<tr>
<td>13</td>
<td>Approaches for Building Social Relationships</td>
<td>Teacher's role in promoting positive social interactions among students with and without disabilities; Providing education about individuals with disabilities; Developing and supporting peer tutoring; Using cooperative learning strategies to facilitate social inclusion; Improving social skills</td>
</tr>
</tbody>
</table>
Preparing Professionals for Changing Educational Contexts

Syllabus
Special Education
University of Nevada, Las Vegas

I. Prefix & Number: ESP 444
II. Title: Special Education Techniques in the Regular Classroom
III. Credit: 3 Hours
IV. Semester: Summer II, 2003; Dates: 6/9/03 – 7/11/03
V. Instructor: Kelly O’Neal
VI. Email:
VII. Course Prerequisite/s: None
VIII. Course Description:
Exploration of techniques/principles commonly employed in special education and their usefulness to general education teachers, recreation personnel, parents, and others who work with students with disabilities in general education settings.

Course Overview
The education of those with diverse learning needs is undergoing dramatic changes and simultaneously changing the ways in which we, as their teachers, will view our responsibilities. Within our own experiences, these initiatives are becoming more and more apparent and we often find ourselves considering the implications for our own practice as educators.

Historically, our educational system has segregated certain groups of students from one another, based on their gender, race, ability, disability, experience, or ethnicity—factors often determined by arbitrary and preconceived ideas of acceptability and excellence. In the process, their teachers and other educational professionals have also been separated from one another. Whether or not this is acceptable, let alone effective, practice is open for discussion. If it is not, then as educators we have a responsibility to create a place where all learners are respected for their individual abilities and diverse learning styles—a process that may require a reconsideration of traditional notions of teaching. If we accept this challenge, then we must not only be well-prepared as to the content and process of teaching and grounded in the belief that all students can learn, but also be committed to the belief that we, as colleagues, share this responsibility.

We can become active participants in changing an unacceptable paradigm of segregation and creating new models of collaboration and cooperation in a democratic society. For these changes to be both successful and farsighted, we, as educators engaged in the reform of educational practice, must share a common vision. We must learn to trust the expertise and diverse perspectives of one another before we even begin to ask our students to do the same.

Our ultimate goal is to create classrooms in which future citizens can learn to respect individual differences, value diversity, and get along with one another. This course provides a safe environment in which to explore this agenda as issues of collaboration with colleagues and parents, as well as equitable access to knowledge and evaluation practices will permeate all our conversations.

Course Goal
To provide students with the knowledge and experiences that are instrumental in understanding, accepting, and addressing the challenges posed by students with exceptional learning needs in your classrooms.

ISTE National Educational Technology Standards addressed
II. Planning and Designing Learning Environments and Experiences
V. Productivity and Professional Practice
XI. CEC Guidelines addressed
3. Philosophical, Historical, and Legal Foundations of Special Education
4. Characteristics of Learners
5. Assessment, Diagnosis, and Evaluation
6. Instructional Content and Practice
7. Planning and Managing the Teaching and Learning Environment
8. Managing Student Behavior and Social Interaction Skills
9. Communication and Collaborative Partnerships
10. Professionalism and Ethical Practices

XII. Course Objectives:

Knowledge
Upon completion of this course, the student will demonstrate competence in the following:

1. Trace the history of special education and changing attitudes toward students with disabilities (CEC CC1,K1,2).

2. Demonstrate knowledge of basic definitions, etiologies, and behavioral characteristics and educational needs of major exceptionalities including: mental retardation, giftedness, orthopedic and other health impairments, blind and visual impairments, deafness and hard of hearing, communication handicaps, emotional disturbance, learning disabilities (CEC CC1,K3,CC2, K1,2,4,7).

3. Describe governmental policies and regulations and court decisions affecting programming for exceptional children, with special emphasis given to an in-depth analysis of the implications and implementation of PL 94-142,105-17 Section 504 and other legal mandates (CEC CC1,K4,5).

4. Describe assessment and measurement issues, methodologies and instruments affecting both the placement of, and programming for, exceptional children (CEC CC3,K1-9).

5. Discuss program options for students with disabilities in the education system (CEC CC3,K9).

6. Discuss the legal aspects of the involvement of General educators in the IEP process and special education (CEC CC7,K1-5, CEC CC4,S3).

7. Discuss a variety of instructional techniques, strategies, and content modifications frequently used with students who have disabilities and are placed in the General classroom (CEC CC7,K1-5).

8. Discuss specific guidelines within the Nevada Administrative Code for Special Education Programs.

9. Develop and discuss professional behavior and ethical practices.

10. Describe the influence culture; family and environment play on disability.

11. Describe how collaboration impacts educational programming for students with disabilities (CEC CC7,K1-5).


Skills
Upon completion of the course the candidate will:
1. Explain the concept of least restrictive environment, mainstreaming, and inclusion and the current impact on the inclusion of students with disabilities in the General classroom (CEC CC5,S8).

2. Identify support levels and specific support services available to those with varying disabilities in schools and society (CEC CC2,S1).

3. Compare and contrast various team approaches (MDT, IDT, TDT) and the trend toward collaboration and consultation (CEC CC7,S6).

4. Describe assistance teams available to teachers in General classrooms (CEC CC7,S1-5).

5. Identify curriculum approaches that promote inclusion of students in General education settings (CEC CC5,S2,5).

6. Identify parent and other stakeholders' perspectives on inclusion, team approaches, and how to promote effective collaboration (CEC CC7,S1-5).

7. Trace the changing attitudes toward students with handicaps.

8. Describe assessment and measurement issues, methodologies and instruments affecting both the placement of, and programming for, exceptional children (CEC CC3,S1-5, S9).

9. Identify and describe the legal mandates for parental involvement in educational programs and specific techniques for the development of home-school programs (CEC CC1,S2,).

10. Compare various parent and community involvement programs applicable to specific disabilities (CEC CC7,S1-5).

11. Describe general methods of classroom management to include environmental strategies, behavioral interventions, and issues related to organization of time, instruction, technology, and materials (CEC CC5,S1-7).

12. Demonstrate the impact of cultural and linguistic diversity on Special Education programming (CEC CC2,S1).

13. Articulate a personal philosophy of special education and its relationship with general education (CEC CC1,S1).

14. Articulate the concept of difference and how this impacts school programming, curriculum adaptations, families, and assessment (CEC CC7,S7, CEC2, S1).

15. Write learning and IEP objectives for individual students (CEC CC4,S2,3).

Dispositions
Upon completion of this course the student will display the following dispositions:

1. Reflect on the value of students with disabilities.

2. Reflect on the need for individualized education that occurs in the least restrictive environment.

3. Reflect on the legal and legislative actions that have created and supported special education.

4. Reflect on the ethical situations in special education.

5. Reflect on how programming and assessment are affected by the individual characteristics of children.
6. Reflect how culture and ethnicity impact learning

7. Reflect on how families, environments, and individual needs affect student learning

8. Reflect on the importance of participation in special education team planning.

XIII. Text

Course Activities/Requirements

In order to meet the goal and objectives of this course and also provide you with specific teaching and collaborative strategies, the class will meet in both large and small groups of 4-6 persons, based either on your acquaintances, your future area of certification, your desire to collaborate with others outside your area of specialization, or some other factor/s. You will be able to complete all class activities via WebCT where announcements, the syllabus, additional session information, case studies, and additional resources will be posted. WebCT will enable you to participate in threaded discussions with the other members of your group.

The following activities/requirements are designed to incorporate your own experiences and expertise, as well as your understanding and interpretation of the literature (readings), into educational planning for students with exceptional and diverse learning needs. Class activities and requirements will result in products that you may choose to include in your professional portfolio to document your preparedness to collaborate in the development and implementation of appropriate instruction for learners with exceptional needs.

1. Informed, Timely, and Consistent Participation: The success of this class depends on our collective attendance and consistent participation. Please call or email before a scheduled class if you are unable to attend or participate. I will do the same. Informed Participation in discussions and activities is also an essential part of this process. Contributions should be based on the literature, collaboration and conversations with peers and mentors, and your own experience. (Due: ongoing) (20 pts.)

2. Case Studies (Small Group Activity): There will be two case studies—one on each of the following learning differences: Cognitive and Behavioral/Emotional. These assignments will enable you to consider each student/situation with your Study Group and propose potential courses of action via Group Discussions. (Case 1 - 10 pts.) (Case 2 - 10 pts.)

3. Reflections: Ongoing reflection about our practice as teachers is essential if we are to understand our students' needs and accomplishments. We reflect about our practice, during our practice, and following our practice to improve our practice. Therefore, throughout this course, you are encouraged to reflect on your readings, class discussions and activities, and conversations with colleagues and then submit your individual reflections twice during the semester to your instructor. (10 pts.)

4. MidTerm: The MidTerm Activity provides an opportunity for you to ensure that your knowledge of the field of Special Education and issues related to individuals with disabilities is sufficient for you to engage in informed conversations and activities regarding specific types of types of disabilities and the implications for you, as a teacher in a general education classroom, in the future. This activity requires thoughtful and careful reading of the resources provided. (20 pts.)
5. Low-Incidence Disabilities (Small Group Activity): There are several categories of Low-Incidence Disabilities, as well as groups of students considered “at-risk”. Your Small Group will select one Low-Incidence or “at-risk” group to explore in depth and present your findings to the entire class. (10 pts.)

6. Summative Activity: This final summative activity provides you with the opportunity to integrate your knowledge, personal and professional beliefs, and expertise/experience regarding diverse learners in our nation’s schools. This is an “open-book” activity designed to prepare you for dealing with the issues these students raise. (10 pts.)

7. Statement of Philosophy: This activity provides an opportunity for you to refine your professional philosophy as a professional educator with particular attention to issues related to the education of individuals with exceptional learning needs. (10 pts.)

Assignment Due Dates/Grading Criteria

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<td>70-73</td>
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**COURSE OUTLINE**

*See Session Guide/s for additional assignments/activities*

**Date**

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<tr>
<td>Sessions 1-2: INTRODUCTION to course content and requirements</td>
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<tr>
<td>6/9, 6/10</td>
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<tr>
<td>What's So Special About Special Education?</td>
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<tr>
<td>Special Education in a Culturally Diverse Society</td>
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<tr>
<td>Definitions, discrepancies, and demographics</td>
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<td>Ongoing initiatives and current interpretations -Brown vs. the Board revisited</td>
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<td>Assignments/Readings: Chapters 1, 2, 8*</td>
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<td>Session 3 PROFESSIONAL PARTNERSHIPS</td>
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<td>6/11</td>
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<tr>
<td>Planning and providing Special Education Services</td>
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<td>Collaboration Models/Collaborating with Parents and other Professionals</td>
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<td>Effective Teaching in the present context: A Model for Consideration</td>
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<td>Assignments/Readings: Chapter 3*</td>
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<td>Session 4 CLASSROOM ORGANIZATION</td>
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<td>6/16</td>
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<td>Use of Rules, Time, &amp; Space</td>
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<td>Grouping Alternatives</td>
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<td>Instructional Materials and Methods</td>
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<td>Assignments/Readings: Chapter 4*</td>
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Sessions 5-7 LEARNERS WITH COGNITIVE DIFFERENCES
6/17, 6/18, 6/23

Students with Learning Disabilities/Gifts and Talents/
Mental Retardation/Speech and/or Language Differences
Promoting Independent Learning

Assignments/Readings: Chapters 6, 9, 10*

**Session 8 EVALUATION AND INSTRUCTION**
6/24

Process Review
CBA and Learning Probes
Charting Student Learning/Behavior
Modifications and Adaptations
Lesson Planning

Assignments/Readings: Chapters 9 & 11; Review Chapter 8*

Session 9 Mid-Term
6/25

**Sessions 10 – 12 LEARNERS WITH BEHAVIORAL OR EMOTIONAL DIFFERENCES**
6/30, 7/1, 7/2

Serious Emotional Disturbances
Managing Behavior
Prevention
Intervention
Maintenance/Generalization
Assignments/Readings: Chapters 12 & 13; Review Chapter 6*

**Sessions 13 - 14 OTHER STUDENTS WITH SPECIAL NEEDS:**
7/7, 7/8

Physical Impairments
Severe and/or Multiple (Low Incidence) Disabilities
Autism, TBI, Hearing and Vision Disabilities
Other Health Impairments,
ADD/ADHD
Students At-Risk
Culturally Diverse Students

Assignments/Readings: Chapter 5*

Session 15 Final/Summative Activity
8/16

Summative Activity
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