Investigating the Use and Effectiveness of Principles Learned in an Online Faculty-training Program

by

Wayne D. Mier

Dissertation submitted in partial fulfillment of the requirement for the degree of
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in
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An Abstract of a Dissertation Submitted to Nova Southeastern University
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The substantial growth of online education has increased the demand for faculty who possess online teaching skills. Many institutions of higher learning offer training programs to teach faculty ways to facilitate online learning. However, the literature on online educations lacked studies demonstrating how those who complete training programs apply their newly acquired knowledge and skills. The purpose of this study was to investigate how online faculty apply the training principles and strategies learned in an online faculty-training program and how students perceive teaching effectiveness.

Using a case study approach and collecting and analyzing quantitative and qualitative data determined the: (a) frequency with which faculty applied effective teaching practices learned in an online education training program; (b) barriers to using effective teaching practices in online teaching after completion of an online faculty-training program; and (c) perceptions of online students concerning faculty teaching effectiveness. The researcher used the *Instructional Practices Inventory* (IPI) to collect information from faculty concerning their online teaching strategies, including frequency and ease of use and proficiency of application. The researcher employed the *Student Evaluation of Online Teaching Effectiveness* survey (SEOTE) to determine student perception of teaching effectiveness. Data included follow-up faculty interviews, the IPI, and the SEOTE responses to create an in-depth investigation of the application of the strategies learned in the online faculty-training program.

The IPI faculty survey identified the frequency of use, the ease of use, and level of proficiency of instructional strategies using the Seven Principles of Good Practice. Faculty tended to use principles that related to the online course they taught and identified time constraints as a major barrier to incorporating some of the instructional strategies. Means for instructional strategies were generally higher on ease of use and level of proficiency than they were on frequency of use. Follow-up faculty telephone interview confirmed this finding. The SEOTE results determined student perception of faculty use of the Seven Principles of Good Practice. Principle 3, active learning, ranked highest and Principle 2, cooperation among students, ranked lowest. Due to the small sample size, the finding of this study should not be generalized to other institutions.

Acknowledgments

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This dissertation is dedicated to my aunt, Naomi M. Castillo (1920-2010). To answer the question she always asked, yes, this is my last paper. You are greatly missed.

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Chapter 1

Introduction

Participation in online classes and programs has been steadily increasing. Enrollment in online courses in the United States increased from 2.3 million students in 2004 to nearly 3.2 million students in 2005 (Allen & Seaman, 2006). By 2006, online enrollment reached almost 3.5 million students (Allen & Seaman, 2007). During fall semester 2007, over 3.9 million students were taking a minimum of one online course (Allen & Seaman, 2008), and within one year, enrollment grew to over 4.6 million (Allen & Seaman, 2009). In fall, 2010 there were 5.6 million students enrolled in at least one online course (Allen & Seaman, 2010). There was an increased need for faculty who possessed online teaching skills to meet the demand (Hixon, Zamojski, & Buckenmyer, 2011; Palloff & Pratt, 2011; Pagliari, Batts, & McFadden, 2009).

Consequently, many institutions offered faculty-training in online teaching (Pagliari, Batts, & McFadden, 2009; Palloff & Pratt, 2011). Palloff and Pratt (2001) described faculty development in online teaching as "providing training for faculty in order to help them get started and support their ongoing work in online teaching" (p. 23). Various studies reported that properly trained and appropriately equipped faculty often volunteered to teach in the online environment (Grant, 2004; O'Quinn & Corry, 2004). These studies underscore the theory that one of the elements necessary for a successful

online learning program is an opportunity for faculty development (Lehmann, 2004; Palloff & Pratt, 2011; Vitale, 2010).

Higher education institutions spend a significant sum on programs designed to teach their faculty methods to facilitate student learning online. Costs can include salaries or stipends for trainers, program development, technical support, administrative support, release time, and stipends awarded to participants upon completion of the program or certification (Agee, Holisky, & Muir, 2003; Betts & Sikorski, 2008; Moore, 2002; Shattuck, Dubins, & Zilberman, 2011). Implementing online faculty-training requires institutions of higher learning to invest a variety of resources. Consequently, institutions should evaluate their training programs for their teaching effectiveness.

Background

Weber State University (WSU) began as Weber State Academy in 1889 in Ogden, Utah. In 1933, the academy became a state junior college and, in 1991, a university. WSU is a coeducational, publicly supported university that offers associates, bachelor's, and master's degrees, as well as professional, liberal arts, and technical certificates. In 2010, WSU's student enrollment exceeded 24,000 students (Weber State University, 2011).

WSU offers online courses, distance learning, independent study, and evening classes in order to meet the complex needs of its students. At the time of this study, WSU Online offered four bachelor's degrees (with nine options), three associates degrees, and two-certification program completely online. These offerings are in addition to the general education classes (Weber State University, 2011).

Development of the Master Online Teacher Certification program at WSU was to assist professors interested in cultivating exemplary online courses. This certification includes an online course, face-to-face workshops, and hands on training. The faculty learns how to use valuable tools and concepts to increase the interactivity and pedagogical expertise of their classes (Weber State University, 2011).

Florida Community College at Jacksonville (FCCJ) can provide an example of the cost incurred in creating a faculty development program. FCCJ received a grant to implement online faculty development programs. From January 2002 to June 2006, FCCJ received a grant for $360,000 from the Fund for the Improvement of Postsecondary Education (FIPSE) to develop an online faculty-training program. The program's training modules covered the basic principles of online teaching and learning (Fund for the Improvement of Postsecondary Education, 2007) and became the foundation for the online professor certification program implemented at the college.

Schrum, Burbank, Engle, Chambers, and Glassett (2005) surveyed FCCJ faculty participants who completed the training modules. The authors used a presurvey and postsurvey method to investigate participant perceptions of changes in their attitudes and online teaching performance. The results indicated that participants were willing to incorporate what they learned into their online courses and intended to change their pedagogical practices, redesign courses, and provide students with a better online learning experience. However, the study did not investigate whether faculty actually implemented the knowledge and skills gained from the faculty training. The authors suggested that future research should investigate student perspectives on the effectiveness of professors who completed the online training program.

Institutions of higher learning require faculty to be experts in their teaching fields. Although faculty may have experience teaching in a traditional classroom, they may not have the skills necessary to facilitate learning in an online classroom (Wiesenmayer, Kupczynski, & Ice, 2008; Wolf, 2003, 2006). As Palloff and Pratt (2001) noted, "Faculty cannot be expected to know intuitively how to design and deliver an effective online course" (p. 23). Faculty needs training not only in the use of technology but also in the art of online teaching (Wiesenmayer, Kupczynski, & Ice, 2008).

Using meta-analysis and interviews with experts, Wolf (2003) compiled a set of best practices for training faculty to teach in the online environment. Because online faculty requires a different skill set from those teaching in the traditional classroom, Wolf recommended offering online faculty development. This training should include pedagogy and the use of learning management systems (LMS).Training should be in an online format in order for the faculty to become online students. Wolf noted a lack of research on the determinants of success in online faculty development programs, and suggested that future research should address the effectiveness from various perspectives, including faculty, administrators, and students.

Although many institutions of higher learning offer faculty-training for effective online teaching, attendance does not guarantee that participants be effective in putting the knowledge and skills they gain into practice. This caveat relates to a question posed by Rose and Leahy (1997), "Did the skills taught in training move or transfer with fidelity to the job site?" (p. 87). Studies that demonstrate the ways in which faculty applies knowledge and skills after the completion of an online faculty-training program are in short supply.

Problem Statement

Limited research addressed the extent to which faculty implement knowledge and skills learned in online training programs. This lack of data creates problems in determining which aspects of faculty-training work or do not work and why. Administrators as well have insufficient information to evaluate the effectiveness of their faculty-training programs. In addition, little research investigated student perceptions of faculty teaching effectiveness after faculty attended an online faculty-training program.

Goal

Many institutions of higher learning offer online faculty training. Several studies reported the results of faculty evaluations of these programs. However, studies that demonstrated the ways in which faculty applied their newly acquired knowledge and skills were lacking in the literature. The goal of this study was to investigate the ways in which faculty that completed an online faculty-training program applied the knowledge and skills to the online classes they taught. Survey data gathered from faculty and students and faculty interviews served as indicators of the effectiveness of the faculty-training program. This triangular research approach provided a complete picture of the effectiveness of faculty development (see Figure 1). These findings could benefit instructional trainers, faculty, and administrators as they design and deliver effective instruction.

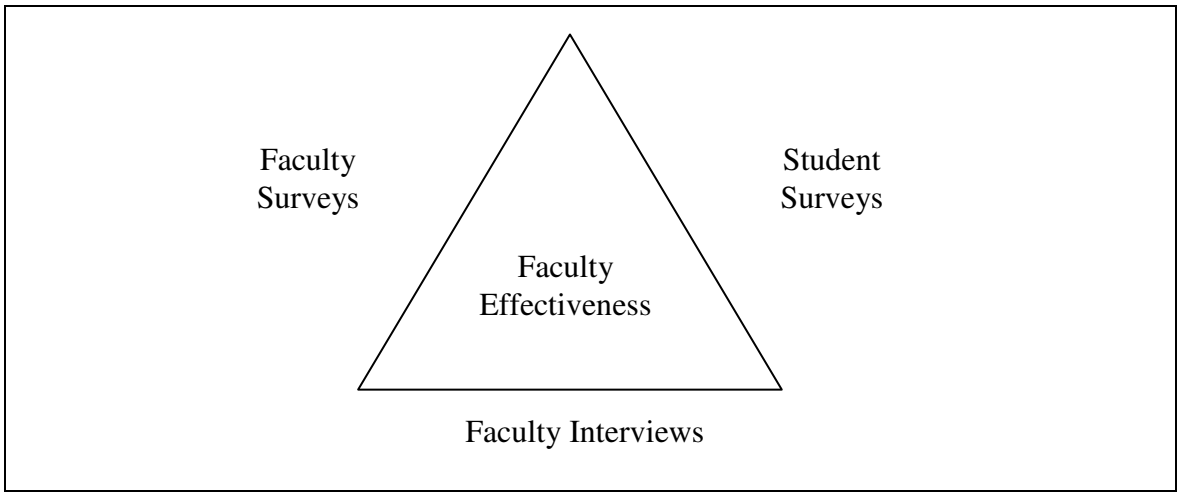

Figure 1. Triangular research approach.

Relevance and Significance

The growth of online education is evident because 17% of students enrolled in higher education in the United States took at least one online class during fall 2009 (Allen & Seaman, 2010). An example of this growth is the North Carolina community college system, which reported an increase of 301% in Internet course enrollment from 2000 to 2003 (Colaric & Broughton, 2003). During the 2006-2007 academic year, online class enrollment included over 164,000 students in that system, which represented a 25% increase from the previous year (North Carolina Community College, 2010). Similarly, one central Florida public university reported approximately 26% of the university's 44,000 students took online courses during the 2003-2004 school year, a 20% increase from 2002. At the same institution, 44% of students enrolled in at least one online class in 2004, an increase of 24.7% from 2003 (Truman, 2004). During the fall 2010 semester, over 25,000 students enrolled in at least one Web-based or video-based course. Of these students, over 4,200 students took only one Web-based class (University of Central Florida, 2010). Elsewhere in Florida, the Virtual College at FCCJ reported enrollment of

more than 32,000 students for 2004-2005 (Puzziferro-Schnitzer & Kissinger, 2005). The growth in online education was evident in the western states as well. A multi-campus community college in Arizona experienced steady growth due to the success of their online courses. Although the college did not report actual demographics, the institution offered more than 200 online courses per term in 2007 (Carter, 2007).

Growth in the online student population required institutions to add additional online classes. This increased enrollment in online courses underscored the demand for qualified online faculty (Pagliari, Batts, & McFadden, 2009; Roman, Kelsey, & Lin, 2010). As a result, colleges and universities, including those described above, implemented online faculty-training programs. Several of the programs led to certification in online teaching, while others offered comprehensive training but did not award certification. Still other programs offered training in the form of workshops or online mini-courses. Various modes of online faculty-training programs shared similar content, including technological tools, course design, and online communication strategies (Carter, 2007; Colaric & Broughton, 2003; Davis, Futch, Thompson, & Yonekura, 2000; Puzziferro-Schnitzer & Kissinger, 2005; Wolf, 2006).

For example, the central Florida public university established a comprehensive faculty-training program to prepare instructors to teach online. The program focused on faculty, course, and learner readiness, using a three-pronged approach that encompassed technology, pedagogy, and logistics (Davis et al., 2000; McCarthy & Samoras, 2009; Wiesenmayer, Kupczynski, & Ice, 2008). The multi-campus community college in Arizona teamed faculty members and instructional designers in the Center for Learning Technologies. They continuously developed and implemented online courses and

programs (Carter, 2007). “The addition of online sections each year drives the need for progressively more trained faculty to teach them” (p. 5). To meet the need for trained online faculty, the community college developed the Online Development and Delivery Certification program. However, no reported studies on the outcomes of this certification program were available.

It is expensive to provide faculty with the necessary training to teach in the online environment (Agee et al., 2003; Betts & Sikorski, 2008; Moore, 2005; Shattuck, Dubins, & Zilberman, 2011). This expense necessitates determining the effectiveness of such programs. The results of the proposed study may offer suggestions to online faculty on ways to enhance the development and implementation of their online courses. In addition, the research findings may prove useful for institutions determining return on investments and deciding whether to continue faculty-training for online courses.

Research Questions

The following research questions guided the investigation:

1. After completing an online faculty-training program, what effective teaching practices do faculty use in their online teaching and why? This data was collected from the faculty by using the *Instructional Practices Inventory (IPI).*
2. After completing an online faculty-training program, what keeps faculty from using effective teaching practices in their online teaching? This data was collected from the faculty using telephone interviews.

3. How do online students perceive teaching effectiveness of the faculty? This data was collected from the students using the *Student Evaluation of Online Teaching Effectiveness* (SEOTE).

Assumptions

Assumptions concerning this study were as follows:

1. Although the course might be required, all student participants volunteered to attend the course in an online format.
2. Faculty would apply principles learned in the online faculty-training program to the classes they teach.

Limitations

Several uncontrollable limitations may have negatively affected the results of this study (Gay, Mills, & Airasian, 2006):

1. This study was limited to one university.
2. This study was limited to two semesters.
3. Students and faculty completed surveys on a voluntary basis.
4. Survey research presented the potential for response bias.

Delimitations

Delimitations are factors within the researcher's control that may affect external validity (Gall, Borg, & Gall, 1996). The following delimitations existed within the current study:

1. The study included wholly online courses and excluded blended classes.
2. The study was not limited to one teaching discipline.

Definition of Terms

The following definitions will apply to the study.

E-learning (online) pedagogy: This term refers to "pedagogical principles and related instructional strategies applicable to an e-learning environment" (Waterhouse, 2005, p. 4).

Learning management system (LMS): LMS incorporates "software that enables instructors to create and organize resources; for example, course documents on the Web. The LMS also facilitates creating and using e-learning resources such as electronic discussion and online tests" (Waterhouse, 2005, p. 5). Examples can include WebCT, BlackBoard, and Angel.

Mentor: A mentor is an online facilitator who assists a faculty candidate or new faculty member with class preparation, and offers guidance and feedback during the first online course (Betz & Muirhead, 2004).

Online faculty development or online faculty training: These terms refer to "providing training for faculty in order to help them get started and support their ongoing work in online teaching" (Palloff & Pratt, 2001, p. 23).

Online faculty-training program: An online faculty-training program focuses on facilitating skills useful to the development and teaching of online courses. This training may include guidance in using LMS. It includes training in the knowledge and skills

essential for applying principles of pedagogy to the online learning environment (Puzziferro-Schnitzer, 2005).

Online learning (E-learning): Online learning is "learning that is delivered solely via the Web. Online learning may refer to entire courses or to learning activities conducted using individual e-learning resources" (Waterhouse, 2005, p. 44).

Online student: For the purposes of this study, online student refers to a student currently enrolled in a fully online course.

Pedagogy: Pedagogy is "the art or profession of teaching. Pedagogy also denotes the principles and instructional strategies related to good teaching" (Waterhouse, 2005, p. 4). The Greek translation often used is "the art and science of teaching children" (Knowles, Holton, & Swanson, 2005, p. 36).

Summary

This chapter described the need to train online faculty in the effective use of LMS and application of online pedagogy. This training is essential because teaching in the online environment differs from teaching in a traditional classroom. Many institutions of higher learning offer online certification or faculty-training programs in order to bridge this gap. Some institutions investigated participant perceptions of changes in their teaching styles after attending online education training. However, such investigations lacked evidence concerning the ways in which faculty that complete training programs implement what they learn in their online courses. Information is also lacking on student perceptions of faculty teaching effectiveness following training. Such information could

benefit online faculty, administrators that fund training, and those that create and provide the training.

The chapter addressed the statement of the problem investigated, the research questions, and the goal of the study. The study limitations, delimitations, and definition of terms were also included.

Chapter 2

Review of Literature

While some faculty members chose to teach online, Palloff and Pratt (2001; 2011) stated that others did not have a choice. Many faculty members were not only obligated to teach online, but also required to develop and teach courses without training in online pedagogy. To satisfy the growing number of students that preferred or even demanded online learning, colleges, and universities had to increase the number of online classes and programs. The growth in online learning current at the time of this study and future predictions of increases created a demand for trained online faculty (Bangert & Easterby, 2008; Hixon, Zamojski, & Buckenmyer, 2011; Kidwell, Freeman, Smith, & Zarcone, 2004; Pagliari, Batts, & McFadden, 2009). Lieblein (2000) pointed out that, while some faculty members desired to teach online, many feared using technology, lacked faith in online pedagogy, and expressed concern regarding the effectiveness of online education. In addition, Koehler, Mishra, Hershey, and Peruski (2004) found that faculty members had limited time to dedicate to learning appropriate online pedagogy.

Barker (2003) reported that, in order to attract and retain online faculty, it was often necessary for institutions to accept faculty candidates with no online teaching experience. In addition, colleges and universities frequently had to use current traditional faculty to teach online. Both groups could lack the skills necessary to teach in the online

environment. Palloff and Pratt (2001) indicated that "the key to well-developed classes is training faculty not only in the use of technology but also [in] the art of online teaching" (p. 21).

The organization of the literature review is in several sections. The first section offers the elements of online faculty development training. The second section includes training methods used in colleges and universities at the time of this study. The third section discusses online pedagogy. The fourth section presents the Seven Principles of Good Practice and uses of these principles in online education.

Elements of Online Faculty Development Training

Lehmann (2004) and Zhen, Garthwait, and Pratt (2008) reported three essential elements involved in successful online learning courses and programs: training the faculty, supporting the faculty in teaching online, and designing the course taught in an online environment. To meet these needs, Covington, Petherbridge, and Warren (2005) presented a triangulated faculty support approach (see Figure 2). The sides of the triangle represent administrative support, professional development, and peer support. First, the administration must support online programs and their goals, including committing both time and financial resources. Second, the professional development leg of the triangle includes faculty needs assessment, faculty training, and evaluation of that training. Third, peer support includes providing opportunities for faculty to share ideas, offering tools to support peer collaboration, mentoring new online faculty, and offering workshops. Online faculty members should not feel isolated and without appropriate resources (Wang, 2009).

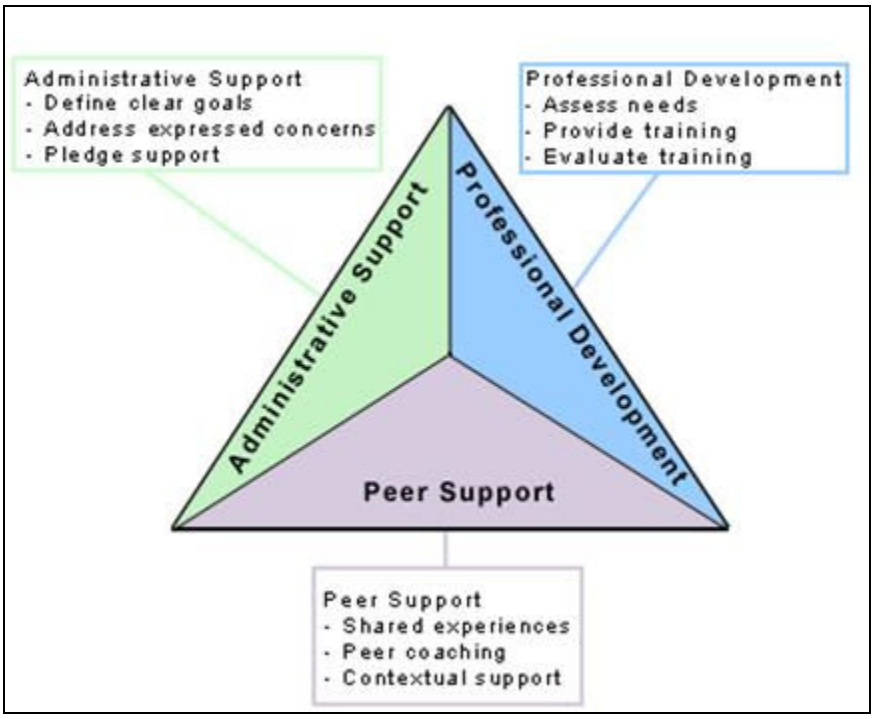

Figure 2. Triangulated faculty support approach (Covington et al., 2005, p. 1).

Kelley (2002) noted that an online faculty development program should have two objectives. The first was to build and foster faculty community in order to facilitate the sharing of information, strategies, and opinions. The second included teaching new online faculty to use the computer applications used in the online environment. This training should incorporate basic use of computers and the Internet, the learning platform, digital libraries, Web page design, and multimedia.

The common thread between Covington et al. (2005) and Kelly (2002) was their desire to encourage faculty to share ideas and support new faculty. While Kelly presented specific teaching tools with which new faculty should become familiar, Covington et al. recognized the need for faculty to use online teaching tools and the importance of administrative support, including financial resources and faculty time.

Online Faculty Development Training Methods

The literature revealed a variety of ways for colleges and universities to provide online faculty development training. This section focuses on the elements of online faculty development and the various practices used at the time of this study. These practices include master's degrees and certification programs, faculty candidate programs, workshops, and mentoring.

Master's Degrees and Certification Programs

There are many challenges in teaching in the online environment, including developing online curricula and managing students. Carnevale (2003) found that many online faculty are self-taught, using the trial-and-error method. In a study by Haber and Mills (2008), faculty reported receiving limited professional training in online teaching and the training offered was on their own time. Some educators, however, opted to enroll in either a master's degree or certification program in distance education. Certification programs offered by colleges and universities varied greatly in length from short workshops to two-year master's degrees. Most programs began with the foundations of distance learning, including pedagogy, management, and marketing skills, various types of distance learning, and the history of distance education. Normally, the training programs employed an online format, thus offering the benefit of learning from the perspective of an online student. Ko and Rossen (2004) and Buckenmyer, Hixon, Barazyk, Feldman, & Freitas (2010) contented there was no better way of learning to be a good online teacher than having the experience of being an online student. Buckenmyer et al. (2010) found when faculty have not been online students it can be difficulty for them to teach *outside the box* as online faculty.

While hiring an instructor with a master's or doctoral degree in education seemed an ideal solution, the faculty candidate could have no online teaching experience. Abramson (2003) pointed out that the process of becoming a professor entailed completing the required degree and mastering the subject. Colleges and universities must provide their new hires with hands-on online teaching experience or training in online faculty development. One method incorporates a microteaching experience into a course, which provides an opportunity for online students to teach a topic in the online environment for a few weeks during the term. Such microteaching may include syllabus development, online discussion and interaction, projects or research papers, providing feedback, and evaluations. While providing the student with an opportunity to teach a microcourse will not replace faculty development programs, it does provide a good start.

Wolf (2006) found that effective training programs employed the course delivery system used to teach in the online environment. For example, Broward College in South Florida required all faculty teaching in the online environment to complete the faculty-training program regardless of their prior online teaching experience. Broward College's e-learning faculty associates facilitated the mandatory training over a four-week period. Modules addressed: Introduction to Teaching Online (including pedagogy), Exploring Course Tools, Exploring Instructor Tools, Building Community through Discussion, Building Community through E-mail, and Learning Management System (Blackboard). Upon completion of all modules, the faculty member earned certification to teach online courses at Broward College (Broward College, 2010).

The Distance Education Clearinghouse listed 17 certification programs offered by various colleges and universities. The schools included California State University,

Indiana University, Marlboro College, and Pennsylvania State University (Carnevale, 2003). Carnevale also found that none of the listed colleges or universities required faculty certification in distance education through completing any of the 17 programs. Certification programs can provide future distance learning faculty members with information on instructional design, teaching strategies, and the use of technology to prepare the individual for online teaching. Certifications are achievable in a much shorter time than that required to complete a master's degree. For someone who wishes to attain a faculty position teaching online, a degree or certification in online education often does not replace online teaching experience or an earned doctoral degree.

The Sloan Consortium is outside the realm of certification programs offered by institutions of higher learning. The Sloan Consortium teaching certificate program builds on the theoretical foundation of the five pillars of learning (Sloan Consortium, 2010). The five pillars consist of learning effectiveness, student satisfaction, faculty satisfaction, cost effectiveness, and access (Lorenzo & Moore, 2002; Moore, 2005).

The Sloan Consortium program comprises three foundation courses and three elective courses. The foundation courses occur in a nine-week sequence and include (a) Getting Started: Online Course Development, (b) Using the Quality Matters Rubric to Improve the Online Course, and (c) Effective Practices Laboratory. In addition to the foundation courses, the participants must complete three of the following elective courses: Transformative Curriculum Development; Copyright Compliance for Online Educators; Workload Management Strategies for Online Educators; Dynamic Collaboration (discussion and facilitation); Moving the Laboratory Online; Blended Learning: Enhancing the Educational Experience; Expanding Access to Adult Literacy

Through Online Learning; Retention in Online Education; and Learning Online 2.0: Engaging, Interacting and Syndicating Applications. Each of these elective courses is one week and students must complete each within two years of beginning the program. The online teaching certification program contains both synchronous and asynchronous components and costs $1499. One difference between this certification program and others is that the Sloan Consortium requires a minimum of one year of instructional experience at an accredited institution of higher education prior to enrolling in the program. This requirement prevents new faculty from obtaining this certification (Sloan Consortium, 2010).

Workshops

Workshops are usually shorter in duration than certification programs and faculty candidate programs. Workshops can be a single session or several sessions and last from one hour to a full day (Gillespie, Hilsen, & Wadsworth, 2002). The Marshall School of Business at the University of Southern California began offering online courses in 2001. Gianos and Ku (2003) found the school used the same faculty to teach in the online environment as those who taught in the traditional classroom. This core group of faculty received training to teach in the online environment by attending workshops. In reviewing student grades and course objectives, Gianos and Ku reported positive learning outcomes. Student enrollment in the online classes grew quickly. If the class were online, it filled before its traditional classroom counterpart. Students reported enjoying the flexibility of online classes and stated that learning increased in this environment.

Gianos and Ku (2003) asserted that, in order to increase the number of online faculty and provide them with the skills necessary to teach in the online environment, a

university needed to train faculty to use the tools and techniques available for teaching online. At the time of Gianos and Ku's study, the Marshall School of Business modified the current curriculum of traditional classes to use in the online environment. An e-learning team assisted faculty in accomplishing this goal. This team conducted workshops with faculty to provide them with the necessary skills for teaching in the online environment, including using online discussions, adding multimedia to lectures, and presenting online lectures. In addition to the workshops, the team provided individual assistance to online faculty. This faculty support led to an increase in faculty interest in teaching online and improved the online class offerings.

The Marshall School of Business adopted three guiding principles to enhance the online programs and the use of technology. First, the school rewarded faculty that developed materials to convert traditional classes to the online environment. Second, the school provided support to faculty in developing these materials. Third, the school began using synchronous online tools. Using these principles assisted the faculty in transferring classes to the online format (Gianos & Ku, 2003).

Another example of faculty-training workshops took place in 2001 at one of Australia's largest universities. The university adopted WebCT as its learning management system (LMS). The university trained faculty in the new technology, quality teaching practices, pedagogy, and curriculum development for the online environment. The basic workshop program contained four face-to-face sessions, which included (a) using WebCT; (b) principles of design, communication, and collaboration tools; (c) adding content to WebCT; and (d) online assessment. The university provided separate

workshops for helpdesk staff, library staff, and instructional designers. The university also provided online resources for reference and self-study (Weaver, 2006).

In the first workshop, the faculty discussed pedagogy and the use of WebCT software. The faculty also used WebCT from a student perspective, giving instructors a practical and technical view of the LMS. After discussing design principles, collaboration, and communication, the faculty was ready to learn how to add content to the LMS. Each faculty participant was required to develop a learning session. In the final workshop, the faculty learned how to assess the learning activities (Weaver, 2006).

All the workshop sessions were during non-teaching periods. One obstacle identified with the multi-session workshop format was that faculty had difficulty finding time to attend the workshops. Lack of time to attend all workshops presented a problem because each workshop session built on the previous content. Despite these obstacles, results from the participant satisfaction surveys suggested the faculty was highly satisfied. Participants evaluated the workshop using a 5-point Likert-type scale with 1 = *extremely satisfied* to 5 = *extremely dissatisfied*. Weaver (2006) reported the first workshop received a 1.73 [*N*=68] and workshops 2 through 4 received a 1.7 [*N*=88].

Faculty Candidate Program

Many colleges and universities require the completion of an in-house training program for online faculty prior to teaching in the online environment. Depending on the institution, these programs can last for a few days or for several months. Carnevale (2003) reported the program at Pennsylvania State University lasted several days, and taught new online faculty to use the university's courseware and learning platforms. Pennsylvania State's Faculty Development 101 course offered online faculty-training in

both authoring and instructing online courses at its World Campus. The authoring component consisted of an introduction and eight instructional modules. These self-paced modules were available not only to those who taught at the World Campus but also to anyone interested in online learning (Pennsylvania State University, 2006; Wang, 2009).

Betz and Muirhead (2004) and Vien (2010) presented the detailed training program used by the University of Phoenix (UOP) for its new online faculty candidates. The training consists of two phases. Phase 1 covers teaching in UOP's online environment, which prepares those who teach in a traditional classroom to become facilitators of online learning. Phase 2 consists of a faculty mentorship program.

According to Betz and Muirhead (2004), new faculty receives candidate status after completing the necessary application and hiring process. The new instructor receives a CD-ROM containing computer applications including Outlook Express, the online learning platform used by UOP. The faculty candidate completes the online tutorial and proficiency tests for e-mail and newsgroups prior to enrolling in a four-week online course. The course covers effective online communication, methods of engaging the student in the online environment, and the policies of the university. The participation requirement is the same for the faculty class as it is for regular online student classes at UOP, requiring posting to the newsgroups five days each week. These postings may include discussions regarding course readings, discussion questions, or responses to postings of other students. Using online training for teaching in this environment aids new faculty in gaining a student's perspective. As indicated by Yang and Cornelious (2005) and Roman, Kelsey, & Lin (2010), online training to teach in the online environment assists the instructor in understanding technology and the design of online

courses. The UOP class also covers academic honesty, attendance, and class time structure (Betz & Muirhead, 2004; Vien, 2010).

Mentoring

Covington et al. (2005) found mentoring and peer support essential in developing new online faculty. For example, Sacred Heart University in Fairfield, Connecticut, offered an online Bachelor of Science degree in Nursing for students who were registered nurses (Barker, 2003); however, the faculty reported a lack of necessary skills to teach and use technology in an online environment. The university developed an online faculty development program addressing faculty buy-in, quality of courses, pedagogy, administrative and technical support, and instructor-student interaction. The online faculty worked with the online learning coordinator to learn instructional design and online learning. Following that review, the instructors acquired skill in using the learning platform and observed an online class in progress., An experienced online faculty member mentored each new online instructor, a vital component that allowed ongoing conversations and learning to occur following the initial orientation and training.

Betz and Muirhead (2004) and Vien (2010) addressed mentoring in their description of the second phase of the online training at UOP. At UOP, the mentor is a seasoned online facilitator who assists the faculty candidate with class preparation and offers guidance and feedback during the first course. The mentor also ensures that individual and collaborative group activities receive appropriate guidance and feedback. Mentors encourage faculty candidates to follow a student-centered educational model. The faculty development model aids new faculty in making the transition from teaching in a traditional classroom to teaching in the online environment. This approach to faculty

development ultimately helps the student succeed in the online learning environment as well. Table 1 presents a brief comparison of the online faculty-training methods.

Table 1

Online Faculty-training Methods

Method	Format	Prerequisite	Content	Length of training	Outcome
Master's Degree	Online	BS or BA degree	Foundation of distance learning; Pedagogy; Management and marketing; History of DL; Hands-on teaching experience; Usually 32 credit hours	1½ to 2 years	Master's Degree
Certification Programs	Online	May require online teaching experience	Instructional design; Teaching strategies; Use of technology; Practice labs; Copyright compliance	9 weeks to 1 year	Certification
Faculty Candidate Programs	Online	None	Courseware; Learning platforms; Authoring and instructing online courses; Engaging the student in the online environment; Policies of the institution	Several days to several months	Candidate will be eligible to teach online at the institution where program was completed.
Workshops	Traditional classroom	None	Learning platforms; Techniques for teaching online; Use of technology; Communication and collaboration tools	One hour to full day or several session	Participant gains knowledge; no certification

Method	Format	Prerequisite	Content	Length of training	Outcome
Mentoring	Online	May be required component of faculty candidate programs and certification programs	Mentor assists with class preparation; Ensures individual and collaborative group activities; Provides guidance and feedback; Encourages student-centered education model; Assists in transition from traditional classroom to online environment	One semester or term	Candidate will be eligible to teach online at the institution where mentoring was completed.

Online Pedagogy

The theoretical basis of constructivism is that, through experiences and conceptual patterns, learners construct their own views through problem-solving (Hergenhn & Olson, 2001). Schunk (2004) defined *constructivism* as a "doctrine stating that learning takes place in contexts and that learners form or construct much of what they learn and understand as a function of their experiences in situations" (p. 480). Bruner's (1966) constructivist theory noted that learning was an active process with sequential activities that built on prior knowledge. The constructivist view of learning places the learner at the center of learning with the instructor as a guide or facilitator (Dalgarno, 2001; Almala, 2006). According to Almala,

> The principles of constructivism meet the theoretical demands of a quality e-learning environment. In a synchronous or asynchronous e-learning course, students use their past knowledge and the knowledge of their peers

> and instructor to enrich the class discourse and negotiation process and, therefore, find the appropriate solutions to the problem at hand. (p. 35)

Teaching in both the traditional classroom and in the online environment requires the use of sound constructivist pedagogical principles. While technology does not replace these principles, it should enhance learning by supporting a constructivist philosophy. Palloff and Pratt (1999) concurred that technology alone cannot change pedagogy. Students learn through effective teaching not through technology.

Of course, teaching is not a new concept. Plato, a Greek philosopher, used examples and stories as teaching tools as early as circa 400 BCE. This method of teaching required the learner to have prior knowledge or experience that related to the stories or examples. Plato posited that knowledge was innate. On the other hand, Aristotle believed that knowledge was not innate, but that it resulted from sensory experiences. Centuries later, Darwin held that obtaining knowledge was both innate and learned through life experiences, combining the views of Plato and Aristotle (Hergenhn & Olson, 2001).

Behaviorism, another philosophy of learning, encouraged changes or new behaviors until those behaviors became repetitious or automatic. Researchers could observe or measure the changes or new behaviors. Thorndike (1913), Watson (1914), Pavlov (1972), and Skinner (1938) developed the behaviorist theory (Phillips & Soltis, 2004).

Cognitivism grew out of behaviorism. Cognitivists noted that observed changes in behavior indicated changes inside the learner's mind. Cognitivism includes Gestalt Theory, which posits that, in order for learning to occur, the learner must understand and

not merely memorize information. The learner must relate parts to the whole (Phillips & Soltis, 2004).

Piaget (1977) theorized that thinking and learning were adaptive traits in mental or cognitive structures (Hergenhn & Olson, 2001), including developmental stages as the child developed and learned (see Table 2). According to Phillips and Soltis (2004), Piaget posited that cognitive structure recorded and formed networks from environment influences and social interactions. New concepts developed by adding to the knowledge already acquired through a process Piaget termed *accommodatory change*. Children moved through these stages according to chronological age (Phillips & Soltis, 2004).

Table 2

Piaget's (1977) Developmental Stages

Appropriate Age	Stage	Major Developments
Birth to 2 years	Sensory motor	Infants use sensory and motor capabilities to explore and gain understanding of their environments.
2 to 7 years	Preoperational	Children begin to use symbols. They respond to objects and events according to how they appear.
7 to 11 years	Concrete operations	Children begin to think logically.
11 years and beyond	Formal operations	Children begin to think about thinking. Thought is systematic and abstract.

Piaget's work formed the foundation for the constructivism to follow. Von Glasersfeld, a physiological constructivist, noted external reality could not infuse knowledge into the learner (Phillips & Soltis, 2004). Learners were unique in the ways in which they acquired information. Consequently, there were many ways to teach, which

became a tenet of radical constructivists. According to Phillips and Soltis (2004), Von Glasersfeld stated, “Constructivism cannot tell teachers new things to do, but suggest why certain attitudes and procedures are fruitless or counter-productive” (p. 52).

In the social learning theory, Vygotsky (1978) proposed that learning was social. Vygotsky expressed interest in the potential for learning and not the learner’s Intelligence Quotient (IQ) or stage of development. Unlike Piaget, Vygotsky observed what the student could achieve or learn given a challenge with the proper guidance. He termed this the “zone of proximal [or potential] development or ZPD” (Phillips & Soltis, 2004, p. 58). Because students learned from one another, learning would increase in groups. Vygotsky also recognized that a key factor in social learning was the young person’s ability to learn by imitation (Phillips & Soltis, 2004) and that interaction in a social setting provided the opportunity for this to occur.

Teachers that adhere to and teach with the constructivist method often follow the principles of Dewey. Dewey posited that more interaction among students was necessary for them to learn together in a social environment. This communication among peers and with teachers would provide learning opportunities (Phillips & Soltis, 2004).

Three combined principles defined the constructivist view of learning. The first is that learners build on and learn from their own experiences. The second principle is active searching, which occurs when the learners uncover a discrepancy between what they know and what they are experiencing (Dalgarno, 2001). The third principle is that learning places the importance of learning on the activity and not on the teacher’s instruction.

There are three interpretations of constructivism. Endogenous constructivism views the teacher's responsibility as that of challenging the learner with activities and experiences in a way that facilitates learning. Exogenous constructivism denotes that formal instruction should provide learners with cognitive activities. Dialectical constructivism involves learning through realistic experience, and requires the teacher to provide learners with focused and structured learning activities with their peers (Dalgarno, 2001). These interpretations can provide a framework for using constructivism.

Many online classes and programs employ the constructivist model. For example, an online faculty member may guide student learning through meaningful experiences by asking probing questions, providing relevant resources, and providing peer interaction. Bangert (2006) noted that these "key indicators of constructivist-compatible online teaching practices include active learning, authentic instructional tasks, collaboration among students, and diverse and multiple learning formats" (p. 228). Constructivist theory and its principles led to the development of a framework of best practices in education, both in the traditional classroom and in the online environment.

The applications of learning theories to e-learning are in Table 3. While online pedagogy includes the use of sound learning theories, technology can act as a catalyst in the learning process (Bangert, 2008).

Table 3

Application of Learning Theories to e-Learning

Learning Theory	Principal Researcher	Concept	Examples of Application to E-learning
Behaviorism	Pavlov (1927), Watson (1914), Thorndike (1913), Skinner (1938)	Changes or establishes a new behavior until that behavior becomes repeated or automatic	Quizzes that provide immediate feedback; Self-assessments; Self-grading exams; Prompt feedback of the instructor
Cognitivism	Piaget (1970)	Critical thinking; thought is systematic and abstract	Concept mapping; Case studies; Research activities
Social Learning	Vygotsky (1978)	Modeling; scaffolding; peer interaction	Group projects; Discussion (replies); Online role play
Constructivism	Bruner (1960)	Active learning; sequencing of material; constructing own hypotheses; building on current or past knowledge	Discussion; Online field trips; Online simulations

Livingston and Condie (2006) evaluated the Scottish Common Higher Open Learning and Access Resources (SCHOLAR) program, an online learning program in Scotland. The SCHOLAR program showed "that use of technology has the potential to act as a catalyst for changing the relationship between teachers and students in the learning process" (pp. 154-155). Students in the program reported greater control over their learning and more choices for learning the content. One student stated, "The animations on the Web site helps you understand it better than drawings on the blackboard" (p. 153). The interactive self-assessments provided immediate feedback.

Another student stated the assessment tool was a good way to check understanding of the material. However, some students noted they preferred to learn from books because they were easier to read. Livingston and Condie concluded that training programs for instructors must go beyond the use of technology and technical skills. Training must also include how technology transforms teaching and learning.

The Seven Principles of Good Practice

Chickering and Gamson (1987) used constructivist-based principles to compile Seven Principles of Good Practice for effective teaching. This framework provided initial guidance for the design and delivery of online courses. Bangert (2004) modified Chickering and Gamson's work to create a final model, which included: "(1) student-faculty contact; (2) cooperation among students; (3) active learning; (4) prompt feedback; (5) time on task; (6) high expectations; and (7) respect for diverse talents and ways of learning" (p. 220).

Waterhouse (2005) noted the Seven Principles of Good Practice applied to both the traditional and online learning environments. The principles also provided criteria to measure best practices for instruction. Bangert (2004) and Waterhouse (2005) evaluated each of the Seven Principles of Good Practice related to online teaching.

Principle 1: Student-faculty contact

Student-faculty contact motivates students to reach peak performance. Student-faculty contact is often through online announcements, electronic discussions, online chats, e-mail, posting of faculty and student bios, blogs, and wikis. This contact also

builds positive relationships and bonds students and faculty (Bailey & Card, 2009; Bangert, 2004; Puzziferro & Shelton, 2009; Waterhouse, 2005).

Lack of positive relationships and bonding between students and faculty can contribute to student feelings of isolation in the online learning environment, leading to higher attrition rates (Bolliger & Martindale, 2004). According to Lovitts (2001), isolation implied lack of integration. The primary factors that led to integration in the academic environment included academic structures and activities and social structures and activities. Other factors contributing to attrition and lack of course satisfaction were fear and anxiety. Conrad (2002) noted that a classroom instructor could alleviate fear and anxiety by using empathetic gestures and body language, such as a smile or a nod. In an online class, expressing empathy could be more challenging because of limitations to the use of text or symbols (e.g., emoticons) to express empathy.

Bolliger and Martindale (2004) found that instructor activities that maintain student-faculty contact decreased attrition rates for online students. Such activities also decreased feelings of isolation and increased student satisfaction. Providing responses to student questions, giving timely feedback on assignments, allowing access to course content, and encouraging interaction were important factors highlighted in student satisfaction surveys. Interaction between students and the course material, between students and instructors, and among students often reduced feelings of isolation in the online learning environment while building community.

Bolliger and Martindale (2004) surveyed 303 randomly selected graduate education students enrolled in an online instructional technology course at a regional university on student satisfaction. The researchers developed an instrument, the Online

Course Satisfaction Survey (OCSS) based on the Telecourse Evaluation Questionnaire (TEQ). The OCSS is a 60-item survey instrument with 42 items requiring Likert-type responses. The survey addressed the following six subscales: (a) instructor variables, (b) technology, (c) course management, (d) the course Web site, (e) interactivity, and (f) general issues. Reliability studies revealed a coefficient of > .5-.91, which represented the strength of correlation directly attributable to the independent variable at 50-90%. Multicollinearity studies demonstrated no multicollinearity existed between the variables. The researchers established content validity through a literature search of student satisfaction surveys. Findings noted the instructor variables of communication, preparation, and content knowledge were the most important factors related to student satisfaction, although other studies concluded that faculty contact was the essential element for success in the online learning environment. However, Palloff and Pratt (2001) noted faculty often lacked the knowledge and skill to design and deliver effective online courses to meet the student needs. The literature lacked studies investigating ways in which faculty applied this principle of student instructor contact to improve their online courses.

Principle 2: Cooperation among students

The principle that encourages cooperation among students supports social learning interaction. Cooperative learning, accomplished through team projects, study groups, forums and chats, e-mail, and peer evaluations, builds deeper understanding and improved thinking. These collaborative and social interactions often reduce the student feelings of isolation and build community (Bailey & Card, 2009; Bangert, 2004; Waterhouse 2005).

Online discussion is widely used in the online environment. Asynchronous discussion threads allow the instructor and students to respond to questions, share and discuss research, and interact as a community (Comeaux, 2005; Palloff & Pratt, 2005). Participation in online discussions can serve as a percentage of the total grade or as a class participation grade. Including participation in online discussion as part of the course grade ensures student participation and raises the quality of the postings in the threaded discussion (Stemwedel, 2005). In addition, Mukawa (2006) suggested that not only should students be required to post an initial response to weekly discussion threads, but they should also respond to at least two of their classmates' postings. Discussion threads used in this manner increase cooperative learning. Discussion threads may also facilitate group projects and as a means to assist peers with problems before contacting the instructor.

Palloff and Pratt (2005) stated that collaborative activities could build a sense of community in the online environment, which, in turn, could lead to further collaboration among students. These collaborative activities should promote critical thinking, reflection, co-creation of knowledge, and learning transformation. Some suggested collaborative activities include role playing, simulations, case studies, dyads, group projects, blogs, debates, and virtual teams.

Bolliger and Martindale (2004) revealed a relationship between student interaction and computer-mediated communication (CMC) tools. Asynchronous CMC tools include e-mail, listservs, discussion boards, and blogs or weblogs. Listservs are e-mail-based discussion groups. Synchronous CMC tools include instant messaging (IM) and video Web-based conferencing. These tools allow better communication and

collaboration among online students. One survey showed that graduate students liked the convenience of listservs as an adjunct to face-to-face contact. In 2002, a study revealed correlation between student collaboration, social interaction, and increased student learning (Repman, Carlson, & Zinskie, 2004).

Cooperation among students can develop a community of learners. Both Rovai (2002) and Song, Singleton, Hill, and Koh (2004) reported that online learners desired a sense of learning community. Rovai conducted a survey of 314 online graduate students in education and leadership programs, and found a significant relationship between a sense of an online learning community and perceptions of greater cognitive learning. Having a sense of learning community resulted in greater student satisfaction and lower attrition rates. The study provided evidence that

> (a) online graduate students can feel connected to their virtual classroom community, (b) students with stronger sense of community tend to have a greater sense of connectedness and perceived cognitive learning, (c) female online students tend to have a greater sense of connectedness and perceived cognitive learning than their male counterparts, suggesting that gender-related differences, such as communication patterns may be involved, and (d) ethnicity and course content do not appear to affect sense of community and perceived cognitive learning in an online environment, as expected. (Rovai, 2002, p. 330)

In a similar study, Song et al. (2004) surveyed 76 graduate students at a southern university. Seventy-one percent had completed more than one online course, and 29% were first-time online learners. One of the qualitative premises focused on barriers or

challenges in online learning. In their interviews, students identified a concern for lack of community. The participants posited that instructors could facilitate a community in the online classroom. One student participant reported that pictures of the instructor and other students posted online assisted in building a learning community. Another stated that a face-to-face meeting for the first night of class would be helpful in putting faces to names in class. Song et al. and Rovai (2002) each stressed the importance of the online students' desire to feel connected in the online environment.

Principle 3: Active learning

Active learning, also known as student-centered learning, engages students and places them in charge of their learning. Active learning is a constructivist-based approach, wherein students learn by relating new knowledge to prior experiences. When students are the center of their own learning, the instructor becomes a facilitator (Koohang, Riley, Smith, & Schreurs, 2009; Waterhouse, 2005). The goal of engaged or active learning is for students to be actively involved with course content, fellow students, and the instructor (Bailey & Card, 2009; Hoskins, 2007). Waterhouse provided examples of online active-learning activities that included online research, field trips, simulations, case studies, role-play, and self-tests.

A key aspect of active learning is collaboration, but students may resist collaboration. Palloff and Pratt (2005) offered several suggestions to online instructors for fostering online collaboration among students. First, students need to be aware of the reasons the instructor requires online collaboration, and provided with appropriate tools for collaboration to take place. Students should get to know each other before working in teams. When students work in groups, it is important for them to develop guidelines and

expectations, for example by creating a team charter. When students develop their own team charters, they not only agree to work together but also identify responsibilities for each role in the group, method of communication, strengths and weakness of each member, and a timeline for assignments. For team collaboration to be effective, the instructor must secure student buy-in early in the course. In addition to the examples provided by Waterhouse (2005), Palloff and Pratt (2005) offered other examples of collaborative activities to foster active learning, including collaborative discussion, group projects, blogs, and team assignments.

Using a group discussion technique in an online course, Wilson, Pollock, and Hamann (2007) further investigated the effects of active learning. Their study included 42 participants divided into groups of 7 to 10 members. The researchers correlated active learning with student outcomes (i.e., course grades) and reported that students with more active learning behaviors achieved higher grades in the course.

Principle 4: Prompt feedback

The principle of prompt feedback is essential in asynchronous online education. When students have questions or problems, require information, or seek feedback and grades on assignments, both prompt responses and feedback are important. Prompt feedback reduces student frustration: “Decades of research support the effectiveness of specific and timely feedback for enhancing task performance” (Bangert, 2004, p. 224). Prompt responses let students know what they did correctly and where they can improve and instructor feedback enables students to assess and evaluate the learning process (Bangert, 2004; Puzziferro & Shelton, 2009). Waterhouse (2005) suggested that, in order to promote feedback, online instructors should use online self-tests and exams that

provided instantaneous grades, as well as allowing individual access to online grade books, holding virtual office hours, and providing electronic feedback to students.

Students require prompt feedback to keep abreast of their learning progress. In order for students to improve incorrectly learned information, they must receive corrections that allow them to recognize learning deficiencies (Chickering & Gamson, 1991; Ritter & Lemke, 2000; Waterhouse, 2005). Chickering and Gamson noted feedback could not occur without assessment. Methods of student assessment could include tests, quizzes, written assignments, and projects. However, any method of student assessment without timely feedback from the instructor on the assessment activity would contribute little to learning. Waterhouse (2005) suggested that online instructors should establish parameters concerning when students could expect to receive feedback and grades. In addition, Koeckeritz, Malkiewicz, and Henderson (2002) suggested that parameters be given both for e-mail responses (e.g., 24 or 48 hours, depending on policy) and for graded assignments (e.g., one week from submission).

Palloff and Pratt (2001) found that most LMS allowed the online instructor to use a quiz or test builder function to administer online assessments. This function allowed the student to receive immediate feedback and automatically entered the grade for the test or quiz into the electronic grade book. Student access to the electronic grade book aided students in staying current on their course progress. In case of technology failure, Waterhouse (2005) suggested that online instructors have students keep a copy of all graded work and Koeckeritz, Malkiewicz, and Henderson (2002) recommended that the instructor provide alternative contact information. Instructors should remind students that if they encounter computer problems at home, they should use the Internet access at the

public library or at the university rather than submitting a late assignment or not submitting the assignment at all.

Principle 5: Time on task

Time on task provides student access to the course or class at anytime and anywhere, which increases the time available for the student to complete learning goals. Time on task not only requires students to have access to the course but also requires them to "invest the appropriate amount of time studying course content and applying what they have learned to real-world situations" (Waterhouse, 2005, p. 33). Students must use time productively and practice time-management skills. In order to assist students with the time-on-task principle, online instructors can provide online resources, track student activities, use online discussions to document student participation, and provide electronic calendars (Grant & Thornton, 2007; Waterhouse, 2005).

Palloff and Pratt (2003) suggested online instructors should make students aware of the estimated time commitment required per week to complete the online course. This information could assist the students in planning their time accordingly. For example, if one online class requires 12 to 15 hours per week, the student may not have the necessary time to complete three online classes successfully. When taking an online class, students need to budget time for studying, interacting online, writing papers, reading, and completing other required assignments. Gilbert (2001) suggested that students preview the course prior to enrolling by reviewing the syllabus in advance. Knowing the requirements to complete the course successfully will assist the student in planning the time commitment and integrating the time into their life schedules.

The principle of time on task can use the tools available on the LMS. Burgess (2003) conducted a study of 57 undergraduate online students using WebCT. One of the communication tools in WebCT includes a course calendar. The calendar allows students to view due dates for assignments or other activities, thereby assisting them in the development of time-management skills. According to the study, the course calendar was the most frequently used WebCT tool at 63.2%, followed by the bulletin board at 17.5%, assignments at 15.8%, and the chat room at 3.5%. The instructor can use the online bulletin board to post assignment due dates and class announcements. The instructor is responsible for keeping the online calendar up-to-date. Bangert (2005) also found that the use of the calendar tool in WebCT improves time on task for online students. Assignments or entries in the course calendar can link to course assignment details in the content module. Bangert reminded online instructors that WebCT's assignment tool could also promote time on task. The assignment tool automatically reminds students of assignment due dates when students access the course. Time management and time on task skills are necessary for the online student to set goals and priorities, budget time, avoid overload, and be committed to the successful completion of their online courses (Palloff & Pratt, 2005).

Principle 6: High expectations

The principle of high expectations refers to the instructor using good examples for students to follow and providing clear expectations and guidelines in order for students to complete quality assignments. When appropriate goals are set, the students need challenges and encouragement to meet the goals (Bangert, 2004). When instructors expect more from students, the students deliver more. Instructors can communicate the

high expectations principle by providing an online syllabus with course goals and expected student performance, online announcements that set high standards, online instructor comments that set patterns for students to emulate, and examples of student work (Bailey & Card, 2009; Grant & Thornton, 2007; Waterhouse, 2005).

Both Palloff and Pratt (2005) and Comeaux (2005) indicated that, because of the learner-centered approach in the online learning environment, students wanted and needed to know class expectations, including the way in which assessment and grading of learning assignments takes place. Arter and McTighe (2001) described performance criteria as guidelines for judging student responses, performance, or works. Performance criteria should describe what the professor or instructor utilizes to judge the quality of the work or activities submitted by a student. While the importance of communicating expectations and evaluation criteria also holds true for the traditional classroom setting, it is even more important in online learning. The traditional classroom student has the luxury of asking questions regarding assignments and receiving immediate feedback; however, it may take hours or days for a student in the online environment to receive the same response. No matter the grading methods, the student must know the criteria for assessment or evaluation of each assignment.

Rubrics are assessment tools that define evaluation criteria. The use of rubrics allows a clear and objective criteria-based assessment of student assignments (Anderson & Puckett, 2003; Truemper, 2004), and provides the instructor with a method of communicating expectations. Williams, Howell, and Hricko (2006) found using rubrics in assessment had several advantages. When used for grading, the rubric affirmed the

student-centered approach to learning because the student knew in advance the goals of the assignment, how to achieve those goals, and the grading criteria.

For example, Truemper (2004), in using a rubric in a graduate nursing class, noted that students reported the rubric focused more on writing and grammar skills than on course content. At the end of the six-week course, however, the instructor observed improvement in the students' writing and communication skills in addition to course concepts. Interestingly, the students who were dissatisfied with the content of the rubric had the most improvement in writing skills. Students stated it was beneficial to conduct a self-assessment of skills prior to submitting the assignments. The instructor found the rubric helpful in grading the nursing students on a consistent basis.

McCauley (2003) stated that rubrics assisted instructors in grading consistently because it forced the instructor to define grading results. For example, if an instructor told a student that he or she produced an excellent paper or project, the student must have a working definition of the term *excellent* to understand what elements the assignment must possess. Truemper (2004) found that the time and effort in developing the rubric and instructing the students on its use was worthwhile because it proved beneficial for both the nursing students and the instructor.

Principle 7: Respect for diverse talents and ways of learning

Respecting diverse talents and ways of learning means using multiple modes of instruction that acknowledge each student's culture, prior knowledge, age, and thought processes (Bangert, 2004; Rovai, 2007). Diverse learning strategies and activities should address students' cultural and learning style differences. For example, instructors can include policies in the syllabus or in discussion forums to address respect for diversity.

Faculty should develop online assignments that promote student interaction through a variety of learning styles and can post an online learning style inventory for students to identify their own learning styles.

Sarasin (1999) divided learning styles into the three most commonly known categories: visual learners, auditory learners, and tactile or kinesthetic learners. Auditory learners learn best by hearing information, and may prefer written material and lectures presented in a sequence. Visual learners learn through images, pictures, and diagrams, among others. These learners prefer an overview of the information before examining the detailed components. Tactile or kinesthetic learners learn when they become active in the learning process; in other words, they learn by doing (Waterhouse, 2005).

Palloff and Pratt (2003) reminded online instructors to address all learning styles in the online environment. Committing to doing so does not mean the instructor must develop multiple activities to address each learning style but can use collaborative resources to allow students to explore multiple paths to learning. Table 4 presents techniques for online instructors to address various learning styles.

Table 4

Online Instructional Techniques to Address Various Learning Styles

Learning Style or Preference	Instructional Technique
Visual-verbal: Prefers to read information.	Use visual aids, such as PowerPoint or whiteboard. Provide outlines or lecture materials in written form. Use written material, such as textbooks and Internet resources.
Visual-nonverbal or visual-spatial: Prefers working with graphs or diagrams to present information.	Use visual aids, such as PowerPoint, video, maps, diagrams, and graphics. Use Internet resources, including those that contain graphics. Use video conferencing.
Auditory-verbal or verbal-linguistic: Prefers to hear material being presented.	Encourage participation in collaborative and group activities. Use streaming audio files. Use audio-conferencing.
Tactile-kinesthetic or bodily-kinesthetic: Prefers physical, "hands-on" activity.	Use simulations. Use virtual labs. Require outside fieldwork. Require presentation and discussion of projects.
Logical-mathematical: Prefers reasoning, logic, and numbers.	Use case studies. Use problem-based learning. Work with abstract concepts. Use virtual labs. Encourage skill-based learning
Interpersonal-relational: Prefers working with others.	Encourage participation in collaborative and group activities. Use discussion boards. Use case studies. Use simulations.
Intrapersonal-relational: Prefers reflection and working with others.	Encourage participation in collaborative and group activities. Use discussion board. Use case studies. Use activities requiring self and group assessment.

(Palloff & Pratt, 2003, p. 37-38)

Palloff and Pratt (2003) noted that students' learning styles change with time, experience, and maturity. In addition, Waterhouse (2005) reminded educators that younger students are different from their parents. These younger learners are computer savvy and grew up during the digital age, thus they will have different needs and expectations than those of older learners. According to Waterhouse (2005),

> A new classification of student has recently emerged that provides insight. *Millennials* are students who were born after 1982 and who most likely favor a tactile learning environment. Some of the characteristics of millennials are that (1) they are cooperative team players; (2) they spend time doing homework and housework and less time watching TV; (3) they believe "it's cool to be smart"; (4) they are fascinated by new technology; (5) they are racially and ethnically diverse; (6) they identify with their parents' values and feel close to their parents; and (7) they often (one in five) have at least one immigrant parent. These characteristics indicate that they will thrive in learning environments that emphasize teamwork, experiential activities, and use of technology. (p. 41)

Application of Faculty Development Training

Taking into account the Seven Principles of Good Practice, Keeton, Sheckley, and Krejci-Griggs (as cited Keeton, 2004) developed the Instructional Practices Inventory (IPI). This instrument measures faculty perceptions of the use of the Seven Principles of Good Practice. Keeton, Sheckley, and Krejci-Griggs added an eighth principle, "Creating an instructional environment that supports and encourages inquiry" (p. 76). After

considering the current literature, the researchers, created strategies to measure the implementation of each of the eight principles; however, they did not report validity and reliability studies for the instrument.

Studies (e.g., Bangert, 2004, 2005) investigated student perceptions of faculty application of online teaching principles; however, there was no demographic data reported on faculty-training or certification in online teaching. Bangert (2004) conducted a study using the Seven Principles of Good Practice as the theoretical framework and a questionnaire consisting of 35 items aligned with the Seven Principles of Good Practice of Chickering and Gamson (1987). A panel of college and university instructors served as content validity experts. The questionnaire yielded internal consistency reliability of .94. Bangert (2005) conducted a second study using the same instrument with a student population with similar results. These studies addressed only student perceptions of faculty use of online teaching principles but did not address faculty perceptions or researcher observations to support changes in online faculty practice.

Students' Perspectives of Online Teaching Effectiveness

In order to assess the effectiveness of online teaching, it is necessary to consider the perspective not only of online faculty but also of online students. Several studies investigated either the faculty or the student perspective on online teaching effectiveness (Bangert, 2004, 2005, 2006, 2008; Keeton, 2004); however, using both perspectives would create a more complete picture of the teaching effectiveness in the online environment.

Researchers used post-course evaluations to measure student satisfaction and to assess learning effectiveness in both traditional and online learning environments (Chen & Hoshower, 2003). The researchers used the student evaluations to produce reports that administrators and faculty could use to improve classes and programs. As Bolliger and Martindale (2004) found, instructor variables were the most important factors in student satisfaction in the online classrooms. Technology and interactivity were also important to online students.

The factors that contribute to student satisfaction in an online class are much different from those that contribute to satisfaction in a traditional classroom setting. Students in the traditional classroom setting often correlate student satisfaction with student life, relationships with faculty, and the difficulty of the course or program. Online students, who may never visit the school campus, consider different factors when evaluating satisfaction (Bolliger & Martindale, 2004). Bolliger and Martindale found that the factors that contribute to student satisfaction in the online environment divided into areas of instructor issues, communication, technology, course management, course website, and interactivity.

As previously noted, Bolliger and Martindale (2004) found that instructor behavior was often the primary factor in online student satisfaction. Providing responses to student questions, giving timely feedback on assignments, allowing early access to course content, and encouraging interaction were important factors in satisfaction. Interaction between students and the course material, between students and instructors, and among students often reduced feelings of isolation while building community.

Summary

The literature review revealed several options for providing online faculty training, including master's degrees, online faculty certification programs, faculty candidate programs, workshops, and mentoring. No matter the method of training, Palloff and Pratt (2001) stated, "The key to well-developed classes is training faculty not only online in the use of technology but also the art of online teaching" (p. 21). The use of the Seven Principles of Good Practice in undergraduate education provides not only a framework for online faculty development programs but also a framework for evaluating online teaching. While the literature review addressed several studies supporting the Seven Principles of Good Practice (Bangert, 2004, 2008; Bolliger & Martindale, 2004; Burgess, 2003; Keeton, 2004; Repman et al., 2004; Ritter & Lemke, 2000; Rovai, 2002; Song et al., 2004; Truemper, 2004; Wilson et al., 2007), it lacked research on the ways in which online faculty applied the knowledge and skills learned in an online faculty-training program in the online classes they taught. Therefore, the current study, employing the Seven Principles of Good Practice as a framework to investigate how online faculty applied the newly acquired knowledge and skills, could begin to fill a gap in the literature.

Chapter 3

Methodology

The Seven Principles of Good Practice serve as a framework and provide a guideline for both the design and delivery of online courses. Several studies presented in the review of the literature supported using the Seven Principles of Good Practice (Bangert, 2004; Bolliger & Martindale, 2004; Burgess, 2003; Keeton, 2004; Repman et al., 2004; Ritter & Lemke, 2000; Rovai, 2002; Song et al., 2004; Truemper, 2004; Wilson et al., 2007). However, the literature lacked studies on the application of effectiveness principles taught in an online faculty-training program. Therefore, using the Seven Principles of Good Practice as a framework, the current study investigated the ways in which online faculty applied the newly acquired knowledge and skills learned and how students perceived the teaching effectiveness of online faculty. This chapter is divided into the following sections: research questions, research methods to be used, specific procedures followed, format for presenting the results, resource requirements, and summary.

Research Questions

The following research questions guided the research to identify the ways in which faculty that completes an online faculty-training program applies the knowledge and skills in the online classes they teach.

1. After completing an online faculty-training program, what effective teaching practices do faculty use in their online teaching and why? This data was collected from the faculty by using the *Instructional Practices Inventory* (IPI).
2. After completing an online faculty-training program, what keeps faculty from using effective teaching practices in their online teaching? This data was collected from the faculty using telephone interviews.
3. How do online students perceive teaching effectiveness of the faculty? This data was collected from the students using the *Student Evaluation of Online Teaching Effectiveness* (SEOTE).

Research Methods

The researcher used a case-study method with both qualitative and quantitative components. As described by Leedy and Ormrod (2005), the purpose of a case study is "to understand one person or situation (or perhaps a very small number) in great depth" (p.144). A case-study method design allowed in-depth focus on the selected group of faculty and student participants.

Quantitative methods

The *Instructional Practices Inventory* (IPI; Keeton, 2004) served as the method to determine the frequency with which faculty uses instructional strategies, their ease of use, and faculty level of proficiency in the practices learned in the online faculty-training program. The IPI examined faculty perceptions regarding their online teaching practices. The developer granted permission to use the inventory (see Appendix A). This instrument applies the Seven Principles of Good Practice to online learning. Demographic

information collected included gender, education level, teaching discipline, teaching experience, and number of online courses taught prior to and after completion of the online faculty-training program. In completing the IPI, instructors were asked to picture the practices they used in one online course they taught. Considering that course, the instructors responded to 41 statements regarding various online teaching strategies. For each statement, instructors indicated their frequency of use, ease of use, and level of proficiency. Faculty responded to the statements using a Likert-type scale of 1-5 (University of Maryland University College, 2008).

Keeton, Sheckley, and Krejci-Griggs (cited in Keeton, 2004) developed the IPI based on the Seven Principles of Good Practice (Chickering & Gamson, 1987). This instrument measures faculty perceptions of the Seven Principles of Good Practice. Keeton, Sheckley, and Krejci-Griggs added an eighth principle, "creating an instructional environment that supports and encourages inquiry" (Keeton, 2004, p. 76). Table 5 compares the principles from Chickering and Gamson (C&G) and Keeton, Sheckley, and Krejci-Griggs (KS&G). According to Keeton,

> These eight principles, though worded differently, partially overlap and supplement the "Seven Principles of Good Practice". In terms of feedback, the KS&G principles added that the feedback needs to be constructive. The KS&G principle on balancing challenge and support combines the C&G principles 6 and 7, encouraging individualization of learning arrangements. A focus on active learning is shared by the two analyses, with KS&G making explicit the need for critical thinking and including

> cooperation among students and interaction between teacher and students as ways to foster the active, critical reflection. (p. 76)

In addition, the researchers designed strategies to measure the implementation of each of the eight principles. The items developed from the results of a literature review conducted by Keeton (2004). Table 6 presents the key findings of these studies.

To understand how students perceive teaching effectiveness of faculty that completed an online faculty-training program, the researcher conducted a student survey for the current study. Although previous studies investigated student perceptions of faculty use of online teaching principles, no demographic data existed on their views of faculty-training or training in online teaching. Bangert (2004) conducted a study using a researcher-designed questionnaire, the *Student Evaluation of Online Teaching Effectiveness* (SEOTE), which consisted of 35 items aligned with the Seven Principles of Good Practice (Chickering & Gamson, 1987; see Table 7). This instrument applied to the current study because it used the Seven Principles of Good Practice in e-learning and showed success in evaluative studies of student perceptions (Bangert, 2008).

Table 5

Principles from C&G and KS&G

Chickering and Gamson (C&G)	Keeton, Sheckley, and Krejci-Griggs (KS&G)
Good practice encourages student-faculty contact.	Make learning goals and create one or more paths to make them clear.
Good practice encourages cooperation among students.	Use extensive and deliberate practice.
Good practice encourages active learning.	Provide prompt and constructive feedback.
Good practice gives prompt feedback.	Provide an optimal balance of challenge and support tailored to the individual student's readiness and potential.
Good practice emphasizes time on task.	Elicit active and critical reflection by learners on their growing experience base.
Good practice communicates high expectations.	Link inquiries to genuine problems or issues of high interest to the learners (thus enhancing motivation and accelerating learning).
Good practice respects diverse talents and ways of learning.	Develop learners' effectiveness as learners early in their education.
No eighth principle	Create an instructional environment that supports and encourages inquiry.

(Keeton, 2004, p. 76).

Table 6

Key Findings of Keeton, Sheckley, and Krejci-Griggs

Key findings of the study to date include the following:
The individual instructor's effectiveness in applying the eight principles of KS&G is a major factor in adult students' learning persistence.
Students need support in addition to the syllabus in understanding and pursuing the learning objectives of a course or other educational effort.
Students in online courses expect faculty to be more readily and promptly available to respond to student communications during non-class times than do traditional classroom students.
The most effective faculty actively use five or more of the full array of instructional principles to elicit the largest learning effects.
Faculty agrees that teaching well online is more time-consuming than teaching in the traditional classroom setting.

(Keeton, 2004, p. 77).

Table 7

The Seven Principles of Good Practice

Number	Principle
Principle 1	Student-faculty contact
Principle 2	Cooperation among students
Principle 3	Active learning
Principle 4	Prompt feedback
Principle 5	Time on task
Principle 6	High expectations
Principle 7	Respect for diverse talents and ways of learning

(Bangert, 2004, p. 220)

Bangert (2006) conducted an extensive study using SEOTE. The participants included 807 undergraduate and graduate students. A six-point Likert-type scale offered

possible responses that ranged from *strongly agree* (6) to *strongly disagree* (1). One open-ended question was also included in order to obtain more detail regarding student perceptions of online teaching effectiveness.

For the current study, the instrument developer gave permission to use the SEOTE (Bangert, 2006; see Appendix A) to gather information regarding student perceptions of online faculty use of online teaching principles (see Appendix B). Student demographic characteristics collected included gender, age, and prior number of online classes completed. The researcher compared student perceptions of online faculty teaching effectiveness to those of faculty.

The SEOTE (Bangert, 2006) and IPI (Keeton, 2004) instruments reflect the constructivist theory of the Seven Principles of Good Practice (Chickering & Gamson, 1991). These principles can provide a framework for online faculty-training programs and evaluate the effectiveness of online teaching. Keeton developed the IPI instrument based on a literature review conducted by the University of Maryland University College (UMUC). The IPI is statistically valid and reliable (Abdul-Hamid & Lewis 2005; Abdul-Hamid, Lewis, & Whitsel, 2005; Keeton, 2004; Lewis & Abdul-Hamid, 2006). A panel of college and university instructors served as content validity experts and examined the SEOTE instrument. Reliability was demonstrated by a coefficient *alpha* of .94 (Bangert, 2006).

In the current study, the researcher used the IPI survey to collect information from online faculty concerning their perceptions of their online teaching. Students completed the SEOTE to provide their perceptions of whether faculty applied effective online

teaching practices. The faculty and students completed the IPI and the SEOTE surveys electronically, respectively.

Qualitative methods

In addition to the two questionnaires, the researcher conducted follow-up telephone interviews, based on the results of the IPI, with faculty participants to identify factors that prevented their applying the e-learning techniques acquired in the online faculty development program. The open-ended questions covered which applications of the principles were in use and investigated barriers keeping faculty from implementing other applications of these principles. Faculty follow-up interviews allowed the faculty to voice their views in detail (Fowler, 2002). Eisner (1998) suggested that the follow-up questions for participants offered the researcher rich description of the research situation. The researcher did not record the faculty telephone interviews.

Participants

The Associate Dean of Continuing Education at Weber State University provided a list of potential faculty participants that completed the Master Online Teaching Certification program and teaching during the summer and fall semesters of 2010. The selection of faculty participants was not limited to one teaching discipline. Surveying faculty that taught in different disciplines provided a broader description of practices used in online education at the selected college, including their use of Blackboard. The Associate Dean of Continuing Education (see Appendix C) invited voluntary participation in the study. Each participant signed a consent form (Appendix D) and offered assurance of confidentiality. Faculty participants completed the IPI surveys

electronically, and follow-up interviews by telephone. There was no compensation provided. Collection of data was during the summer and fall 2010 semesters.

At the time of the study, student participants were members of the faculty participants' online classes. The Associate Dean of Continuing Education (see Appendix E) invited students to participate. This invitation directed the students to a non-college website to access the SEOTE survey (see Appendix B). There was no compensation provided. Collection of data was during the summer and fall 2010 semesters.

Specific Procedures

The researcher developed the following procedures to conduct the study.

1. Weber State University granted permission to conduct the study (see Appendix F).
2. The Institutional Review Board (IRB) at Nova Southeastern University (NSU) granted permission to conduct the study (see Appendix G).
3. The basis for selection of faculty participants was on their completion of the Master Online Teacher Certification program at Weber State University and their teaching in the online environment at the time of the study. The Associate Dean of Continuing Education sent an invitation to participate (Appendix C) in the study and informed consent forms (Appendix D) to faculty.
4. Faculty participants signed informed consent forms (see Appendix D).
5. The IPI survey link was sent to the faculty participants electronically. The faculty participants completed the IPI survey.

6. The student participants were current members of the faculty participants' online classes. They received an electronic invitation to participate in the study (Appendix E). The SEOTE survey link was sent electronically to the students. The SEOTE was distributed and completed at the end of the course. Informed consent was not required because there was no identifiable information collected.
7. Faculty interviews followed completion of the IPI, which also served as informed consent.
7. The researcher computed and analyzed appropriate descriptive and inferential statistics for both the individual faculty members and the student participants.
8. Qualitative data was gathered using faculty telephone interviews. The faculty interviews were based on the responses from the IPI. The researcher sought themes and commonalities in the qualitative data as related to the research questions.

Summary

This chapter presented the methodology used in the research study. It included the research methods, specific procedures, and detailed descriptions of the instruments. The chapter referenced the reliability and validity of the SEOTE and the IPI. The chapter also presented criteria for participant selection and the steps taken to protect participants' anonymity.

Chapter 4

Results

This chapter includes the findings of the study. It also includes descriptions of the demographics of both the faculty and student participants, quantitative data findings of the IPI and SEOTE surveys, and the qualitative data gathered in the faculty telephone interviews.

Demographics of the Study

This study site was Weber State University (WSU) in Utah. At the time of the study, WSU had over 24,000 students and 331 faculty members, including 171 professors, 99 associates professors, and 61 instructors and lecturers. Sixty percent of the faculty held doctoral degrees, 26% have masters, 22% have bachelors, and 3% have other degrees (Weber State University, 2011). According to the Associate Dean of Continuing Education at WSU, in the fall 2010 semester, WSU has 251-faculty teaching in the online environment and 7058 online students. WSU offered 475 sections online, with course enrollments of 12,760. This number represented 17% of the total enrollment of the university (Gail Niklason, personal communication, December 20, 2010).

Faculty Demographics

The faculty participants in this study completed the Master Online Teacher Certification program at WSU and taught during the summer or fall 2010 semesters. The IPI survey invitation was sent to 67 professors that were teaching online at the time of the

survey. Eight professors submitted the IPI survey, for a 12% response rate. Seven professors participated in the telephone interviews. One professor did not provide contact information. Of the eight professors, two were male, and six were female. No participating faculty member held only a B.S. or B.A. degree; however, two held an M.S., M.A., or M.Ed. as the highest earned degree. One was a doctoral candidate, and five held Ph.Ds or Ed.Ds. The teaching disciplines included nursing, integrated studies, political science, criminal justice, marketing education, and sociology. The number of classes taught online by the survey participants prior to attending the Master Teaching Certification program were as follows: zero with no classes, three between 1 and 10, three between 11 and 20, none between 21 and 30, and two with 31 or more. The number of classes they taught online after completing the Master Teaching Certification program were as follows: zero with no classes, three between 1 and 10, three between 11 and 20, one between 21 and 30, and one with 31 or more. The A summary of faculty demographics is shown in Table 8.

Table 8

Faculty Demographics

Variable	*N*	Percentage
Gender		
Male	2	22.2
Female	6	77.8
Education		
BS/BA	0	0.0
MS/MEd/MA	2	33.3
Doctoral Candidate	1	11.1
PhD/EdD	5	55.6
Number of classes taught online prior to completing the Master Certification program		
None	0	0.0
1-10	3	33.3
11-20	3	44.4
21-30	0	0.0
31 or more	2	22.2
Number of classes taught online after completing the Master Certification program		
None	0	0.0
1-10	3	44.4
11-20	3	33.3
21-30	1	11.1
31 or more	1	11.1

Student Demographics

The student participants for this study were members of fully online classes offered through Blackboard at WSU during the summer or fall 2010 semesters. The SEOTE survey invitation went to 653 online students and garnered a 9.5% response rate. These students were currently enrolled in the eight-faculty participant's classes. The number of students that participated in this study was lower than expected. The lower number was due to the number of faculty participants and that the university's online student population is 17% of total enrollment. Of the 56 students who submitted the SEOTE survey, 24 were male, and 32 were female. Twenty-six of the students were

between 18 and 25 years old, 17 were between 26 and 30, 5 were between 31 and 35, and 8 were older than 35. Nine of the students surveyed indicated they had not taken any previous online classes; 9 had taken one online class; seven had taken two online classes; eight had taken three online classes; zero had taken four online classes; and 23 had taken five or more online classes. Due to the low number of responses to this survey, this study is not generalized to other universities or colleges. A summary of online student demographics is in Table 9.

Table 9

Student Demographics

Variable	*N*	Percentage
Gender		
Male	24	43.5
Female	32	56.5
Age		
18-25	26	45.2
26-30	17	29.0
31-35	5	9.7
> 35	8	16.1
Prior online classes		
None	9	16.1
1	9	16.1
2	7	11.3
3	8	12.9
4	0	1.6
5 or more	23	41.9

Format of Data Analysis

In order to enhance the understanding of the data analysis, the quantitative data are presented first. These data will be used to answer research questions 1 and 3. The qualitative data will be used to expand on the answer to research question 1 as well as answer research question 2.

Quantitative Results Research Question 1

After completing an online faculty-training program, what effective teaching practices do faculty use in their online teaching and why? To provide answers to the quantitative aspect of Research Question 1, faculty completed the IPI survey. The invitation to participate in the faculty IPI survey went to 67 professors teaching in the online environment during the summer and fall 2010 semesters. Although nine faculty participants submitted the IPI survey, only eight returned surveys containing usable data, with one respondent that completed only the demographic information. The faculty participants rated each of the instructional strategies represented for frequency of use, ease of use, and level of proficiency on a 5-point Likert-type scale.

Frequency of Use

The possible responses for frequency of use on the 5-point Likert-type scale ranged from *never use* (1) to *always use* (5). Table 10 shows the ranking of Keeton, Sheckley, and Krejci-Griggs (KS&G) principles based on the aggregate means for the frequency of use of the strategies within each principle. The *N* in Table 10 equals the number of faculty responses of items per principle.

Table 10

Ranking of KS&G Principles by Frequency of Use

KS&G principle	*N*	*M*	*SD*
KS&G 8: Create an instructional environment that supports and encourages inquiry	8	4.6250	.74402
KS&G 2: Use extensive and deliberate practices	40	4.2000	.85335
KS&G 6: Link inquiries to genuine problems or issues of high interest to the learners (thus enhancing motivation and accelerating their learning)	36	3.6111	1.59065
KS&G 3: Provide prompt and constructive feedback	39	3.5128	1.55380
KS&G 5: Elicit active and critical reflection by learners on their growing experience base	63	3.3651	1.41765
KS&G 1: Make learning goals and one or more paths clear	54	3.2000	1.87972
KS&G 4: Provide an optimal balance of challenges and support that is tailored to individual student's readiness and potential	32	2.8437	1.54731
KS&G 7: Develop learners' effectiveness as learners early in their education	42	2.7143	1.51876

In the IPI results, KS&G Principle 8—create an instructional environment that supports and encourages inquiry—was ranked highest. It is noteworthy that there was only one instructional strategy for this KS&G principle: enthusiastic about the subject and students' learning about it (see Table 11). Keeton (2004) also ranked the instructional strategy for this principle highest (M = 4.54, SD = .43). Keeton suggested these results offered support for the view that faculty worked to promote learning and create a positive learning environment. The SEOTE revealed the students viewed instructors as

enthusiastic to some degree, with only 54.6% of students strongly agreeing or agreeing and 32.7% of students mildly agreeing. During the telephone interviews for the current study, faculty appeared enthusiastic about teaching online and enjoyed sharing information. The *N* in Table 11 equals the number of faculty responses.

Table 11

Mean Ranking for Principle 8 Strategies by Frequency of Use

Strategy	*N*	*M*	*SD*
Enthusiastic about the subject and students' learning about it	8	4.6250	.74402

KS&G Principle 2—use extensive and deliberate practices—ranked second highest. Table 12 shows the following instructional strategies for this principle in order of highest to lowest mean: (a) continually provide feedback on student performance; (b) provide sufficient time on tasks for each student; (c) break information into manageable steps to master recall and skill in the course; (d) feedback not only identifies errors but also includes causes and ways to correct errors; and (e) make students aware of resources for their mastery of recall and skill, including my own expertise. Time on task, Principle 5 in the SEOTE, supports these finding, being the third ranking principle, with 66.7% of students strongly agreeing or agreeing and 21.4% mildly agreeing.

On the SEOTE in response to whether they were provided with supportive feedback related to course assignments, 67.3% of students strongly agreed or agreed while 18.2% mildly agreed. These findings are supported by the literature that suggested that online learners required prompt feedback but also that the feedback should not only identify errors (Bangert, 2004; Chickering & Gamson, 1991; Ritter & Lemke, 2000; Waterhouse, 2005) but also indicate ways to correct them (Bangert, 2004; Puzziferro & Shelton,

2009). Even though the rating for making students aware of resources for mastery of skills was low, one professor stated in the interview that his students used the assigned textbook in addition to provided supplemental resources. Faculty also stated that feedback was provided to the students by e-mail, online discussion, and returned assignments. The *N* in Table 12 equals the number of faculty responses.

Table 12

Mean Ranking for KS&G Principle 2 Strategies by Frequency of Use

Strategy	*N*	*M*	*SD*
Continually provide feedback on student performance	8	4.5000	.75593
Provide sufficient time on tasks for each student	8	4.5000	.53452
Break information into manageable steps to master recall and skill in the course	8	4.3750	.74402
Feedback not only identifies errors but also includes causes and ways to correct errors	8	3.8750	.99103
Make students aware of resources for their mastery of recall and skill, including my own expertise	8	3.7500	1.03510

KS&G Principle 6—link inquiries to genuine problems or issues of high interest to learners (thus enhancing motivation and accelerating their learning)—was ranked the third highest. Table 13 shows the following instructional strategies for this principle in order of highest to lowest mean: (a) learn of students' difficulties relevant to the course and use this information in developing instruction; (b) provide multiple opportunities for students to apply their learning; (c) pose learning tasks in terms of solving problems as well as in terms of accumulating knowledge; (d) elicit student analysis of what worked and did not work in their problem-solving experiences; and (e) if student seeks licensure,

certification, or other testament to meet professional standards, I relate learning objectives to that goal.

In the faculty interviews, most professors identified that using online discussion provided information concerning whether the students were on the right track. The faculty also stated they used writing assignments and case studies as avenues for students to apply new knowledge. The lowest ranked strategy was relating learning objectives goals to licensure or certification. Only one of the faculty participants taught a nursing class. Nursing and allied health students would more likely use goals in classes to obtain licensure or certification. This finding was consistent with Keeton (2004), who noted few students needed credentials ($\bar{x}$ = 3.00; *SD* = 1.07). The *N* in Table 13 equals the number of faculty responses.

Table 13

Mean Ranking for KS&G Principle 6 Strategies by Frequency of Use

Strategy	*N*	*M*	*SD*
Learn of student difficulties relevant to the course and use this information in developing instruction	8	4.3750	.91613
Provide multiple opportunities for students to apply their learning	7	4.1429	1.21499
Pose learning tasks in terms of solving problems as well as in terms of accumulating knowledge	7	3.7143	1.49603
Elicit student analysis of what worked and did not work in their problem-solving experiences	7	3.1429	1.86445
If student seeks licensure, certification, or other testament to meet professional standards, I relate learning objectives to that goal.	7	2.5714	1.98806

KS&G Principle 3—provide prompt and constructive feedback—ranked fourth highest. Table 14 shows the following instructional strategies for this principle in order of

highest to lowest mean: (a) require students to make weekly contributions; (b) provide support related to risk or difficulties faced by each student as the course progresses; (c) advise students in need of remedial work of ways to get needed help; (d) use role-playing, simulation, or activities to supplement lecture and discussion in learning; and (e) adapt challenges to students based on differences in their prior knowledge and skill levels. Requiring students to make weekly contributions was a strategy consistently used according to the faculty interviews. Most faculty interviewed required postings to the online discussion on a regular basis.

The use of role-playing and simulation activities could also be consistent with comments made by faculty that synchronous activities were difficult due to time constraints. However, many faculty reported using video, audio, and other methods to address learning styles. Faculty identified that they did not adapt challenges to students based on differences in their prior knowledge. This practice was the lowest ranked for this principle. Keeton (2004) reported faculty considered that students were aware of the courses to take and in what sequence, knowledge that adequately prepared them for the next class. The *N* in Table 14 equals the number of faculty responses.

Table 14

Mean Ranking for KS&G Principle 3 Strategies by Frequency of Use

Strategy	*N*	*M*	*SD*
Require students to make weekly contributions	8	4.7500	.70711
Provide support related to risk or difficulties faced by each student as the course progresses	8	4.0000	1.41421
Advise students in need of remedial work of ways to get needed help	8	3.7500	1.38873
Use role-playing, simulation, or activities to supplement lecture and discussion in learning	7	2.5714	1.51186
Adapt challenges to students based on differences in their prior knowledge and skill levels	8	2.3750	1.50594

KS&G Principle 5—elicit active and critical reflection by learners on their growing experience base—was the fifth highest. Table 15 shows the following instructional strategies for this principle in order of highest to lowest mean: (a) encourage students to question assumptions made by others, (b) encourage students to think about effectiveness of their thinking, (c) provide opportunities for collaborative learning, (d) encourage students to consider alternative interpretations of others, (e) arrange for students to conduct well-designed research and case analyses, (f) check student inferences for validity and encourage students and their peers to do the same, (g) encourage students to try more than one approach to solving complex problems, and (h) encourage students to question and monitor the credentials of alleged authorities in the field. Online discussion provides the opportunity for collaborative learning (Bailey & Card, 2009; Bangert, 2004; Waterhouse, 2005). Faculty indicated the opportunity for collaborative learning was provided. This result was confirmed by faculty stating during interviews they required participation in online discussion. The SEOTE found that 61.8%

of students strongly agreed or agreed and 21.8% mildly agreed that the course was used to stimulate thoughtful discussion. These results may suggest that students did not associate online discussion with collaborative learning. Some strategies in this KS&G principle ranked lower. Keeton (2004) suggested that faculty could be successful in their teaching without using these instructional strategies. Two professors interviewed noted they only use the instructional strategies relevant to the courses they teach. The *N* in Table 15 equals the number of faculty responses.

Table 15

Mean Ranking for KS&G Principle 5 Strategies by Frequency of Use

Strategy	*N*	*M*	*SD*
Encourage students to question assumptions made by others or by themselves	8	4.0000	1.06904
Encourage students to think about effectiveness of their thinking	8	3.7500	.88641
Provide opportunities for collaborative learning	8	3.7500	1.83225
Encourage students to consider alternative interpretations of their experiences and the experiences of others	7	3.5714	1.61835
Arrange for students to conduct well-designed research and case analyses	8	3.1250	1.24642
Check student inferences for validity and encourage students and their peers to do the same	8	3.0000	1.60357
Encourage students to try more than one approach to solving complex problems	8	3.0000	1.60357
Encourage students to question and monitor the credentials of alleged authorities in the field	8	2.7500	1.38873

KS&G Principle 1—make learning goals and one or more paths clear—placed sixth with the highest mean. Table 16 shows the following instructional strategies for this principle in order of highest to lowest mean: (a) effectively introduce myself to my

students at the beginning of each semester, (b) state objectives in syllabus, (c) spell out a timeline for completing successive steps toward meeting the objective, (d) encourage students to incorporate their own goals into the work of the course, (e) further clarify course objectives through online discussion, (f) require repeated practice on each objective of the course, and (g) ask students to restate objectives in their own words. All faculty stated they introduce themselves at the beginning of the semester and state objectives in the syllabus. Most faculty interviewed discussed the importance of the syllabus in online learning, a practice supported by the literature (Bailey & Card, 2009; Grant & Thornton, 2007; Waterhouse, 2005). While faculty indicated during telephone interviews that the course objectives were in the syllabus, the data did not suggest a requirement for students to restate objectives or practice them repeatedly. One professor in the telephone interview stated she used the online calendar in addition to a detailed syllabus to help the students with time management. In a study by Burgess (2003), the course calendar was one of the most frequently used tools in the learning platform to improve time-management skills for online learners. The *N* in Table 16 equals the number of faculty responses.

Table 16

Mean Ranking for KS&G Principle 1 Strategies by Frequency of Use

Strategy	*N*	*M*	*SD*
Effectively introduce myself to my students at the beginning of each semester	7	5.0000	.00000
State objectives in syllabus	8	5.0000	.00000
Spell out a timeline for completing successive steps toward meeting the objectives	7	4.7143	.48795
Encourage students to incorporate their own goals into the work of the course	8	2.6250	1.59799
Further clarify course objectives through online discussion	8	2.5000	1.85164
Require repeated practice on each objective of the course	8	2.0000	1.51186
Ask students to restate objectives in their own words	8	1.5000	1.41421

KS&G Principle 4—provide an optimal balance of challenges and support that is tailored to individual students' readiness and potential—ranked seventh by mean. The following instructional strategies for this principle in order of highest to lowest mean are presented in Table 17: (a) expose students to different applications of the course subject matter, (b) encourage students to draw from their experiences on the job or in other noncourse activities to assist learning, (c) introduce students to a variety of cultures or subcultures, and (d) allocate a portion of the course grade to student participation in professional conferences. Encouraging students to draw on past experiences, including their jobs, is in line with the constructivist theory, wherein students build new information based on current or past knowledge (Bangert, 2006; Bruner, 1960). For the lowest ranking strategy, allocating a proportion of the course grade to student participation in professional conferences, 100% of the faculty ranked the strategy as 3 or

less. This rating could relate to a lack of students who require licensure or certification (Keeton, 2004). This was one of the lower ranked principles. In faculty interviews, two instructors stated that they did not use strategies listed on the IPI that did not apply to their classes. The *N* in Table 17 equals the number of faculty responses.

Table 17

Mean Ranking for KS&G Principle 4 Strategies by Frequency of Use

Strategy	*N*	*M*	*SD*
Expose students to different applications of the course subject matter	8	3.7500	1.03510
Encourage students to draw from their experiences on the job or in other noncourse activities to assist learning	8	3.5000	1.51186
Introduce students to a variety of cultures or subcultures	8	3.0000	1.51186
Allocate a portion of the course grade to student participation in professional conferences	8	1.1250	.35355

KS&G Principle 7—develop learners' effectiveness as learners early in their education—was the lowest ranked of the KS&G principles. Table 18 shows the following instructional strategies for this principle in order of highest to lowest mean: (a) make students aware early in the course of the importance of being a skillful learner, (b) design every assignment to enhance students' skills as learners, (c) make students aware of the characteristics of highly effective learning, (d) encourage students to use tools and skills that enhance their learning while also saving their time, (e) encourage students to evaluate their efforts to become more proficient learners, and (f) assess students' skills as learners at the beginning of the learning experience. These findings indicated a lack of pre-testing the students at the beginning of class. Keeton (2004) suggested such practices could be linked to the belief that students should be prepared to start the class. It is

noteworthy that KS&G principle 7 was ranked the lowest for not only ease of use, but also frequency of use, and level of proficiency. The *N* in Table 18 equals the number of faculty responses.

Table 18

Mean Ranking for KS&G Principle 7 Strategies by Frequency of Use

Strategy	*N*	*M*	*SD*
Make students aware early in the course of the importance of being a skillful learner	7	3.7143	1.11270
Design every assignment to enhance students' skills as learners	7	3.2857	1.49603
Make students aware of the characteristics of highly effective learning	7	2.5714	1.51186
Encourage students to use tools and skills that enhance their learning while also saving their time	7	2.4286	1.27242
Encourage students to evaluate their efforts to become more proficient learners	7	2.4286	1.81265
Assess students' skills as learners at the beginning of the learning experience	7	1.8571	1.57359

Ease of Use

The 5-point Likert-type scale possible responses for ease of use ranged from *unable to use* (1) to *very easy to* use (5). Table 19 shows the ranking of KS&G principles based on the aggregate mean for the ease of use of the strategies within each principle. The *N* in Table 19 equals the number of faculty responses of items per principle.

Table 19

Ranking of KS&G Principles by Ease of Use

KS&G principle	*N*	*M*	*SD*
KS&G 8: Create an instructional environment that supports and encourages inquiry	8	4.7500	.70711
KS&G 2: Use extensive and deliberate practices	40	4.4750	.81610
KS&G 1: Make learning goals and one or more paths clear	45	4.3556	1.19003
KS&G 3: Provide prompt and constructive feedback	31	4.2258	1.05545
KS&G 6: Link inquiries to genuine problems or issues of high interest to the learners (thus enhancing motivation and accelerating their learning)	31	3.9677	1.30343
KS&G 5: Elicit active and critical reflection by learners on their growing experience base	57	3.9298	1.17807
KS&G 4: Provide an optimal balance of challenges and support that is tailored to individual students' readiness and potential	27	3.5185	1.47727
KS&G 7: Develop learners' effectiveness as learners early in their education	36	3.1944	1.36945

KS&G principle 8—create an instructional environment that supports and encourages inquiry—placed highest for ease of use. Table 20 shows the only instructional strategies for this principle: enthusiastic about the subject and students' learning about it. Faculty indicated that it was easy to be enthusiastic about the subject and students' learning about it in their online teaching. The mean for frequency of use for this strategy was only slightly lower. The *N* in Table 20 equals the number of faculty responses.

Table 20

Mean Ranking for KS&G Principle 8 Strategies by Ease of Use

Strategy	*N*	*M*	*SD*
Enthusiastic about the subject and students' learning about it	8	4.7500	.70711

KS&G Principle 2—use extensive and deliberate practices—ranked second highest by mean. The following instructional strategies for this principle are listed in order of highest to lowest mean Table 21: (a) provide sufficient time on tasks for each student; (b) continually provide feedback on student performance; (c) break information into manageable steps to master recall and skill in the course; (d) feedback not only identifies errors but also includes causes and ways to correct errors; and (e) make students aware of resources for their mastery of recall and skill, including my own expertise. Overall, the faculty found this principle easy to use in their online classes, a finding that fell in line with the result for frequency of use. The *N* in table 21 equals the number of faculty responses.

Table 21

Mean Ranking for KS&G Principle 2 Strategies by Ease of Use

Strategy	*N*	*M*	*SD*
Provide sufficient time on tasks for each student	8	4.7500	.70711
Continually provide feedback on student performance	8	4.7500	.70711
Break information into manageable steps to master recall and skill in the course	8	4.7500	.46291
Feedback not only identifies errors but also includes causes and ways to correct errors	8	4.2500	.88641
Make students aware of resources for their mastery of recall and skill, including my own expertise	8	3.8750	.99103

KS&G Principle 1—make learning goals and one or more paths clear—ranked third highest by mean. Table 22 shows the following instructional strategies for this principle in order of highest to lowest mean: (a) state objectives in syllabus, (b) spell out a timeline for completing successive steps toward meeting the objectives, (c) effectively introduce myself to students at the beginning of each semester, (d) require repeated practice on each objective of the course, (e) encourage students to incorporate their own goals into the work of the course, (f) further clarify course objectives through online discussion, and (g) ask students to restate objectives in their own words. All faculty revealed that stating objectives in the syllabus was very easy and was a practice they always used. The mean was the same for ease of use and frequency of use for the practices of spelling out a timeline for meeting objectives. The professor who stated she used the calendar function for assisting in time management skills and achieving objectives also verified this use. Faculty also found the practice of introducing themselves at the beginning of the semester easy and did so very often. The last four strategies ranked higher for ease of use than for frequency of use. These results reinforced findings of the faculty interviews that professors do not use the strategies in their online teaching that do not apply to the courses they teach, even if they are easy to use. The *N* in Table 22 equals the number of faculty responses.

Table 22

Mean Ranking for KS&G Principle 1 Strategies by Ease of Use

Strategy	*N*	*M*	*SD*
State objectives in syllabus	8	5.0000	.00000
Spell out a timeline for completing successive steps toward meeting the objectives	7	4.7143	.48795
Effectively introduce myself to students at the beginning of each semester	7	4.7143	.75593
Require repeated practice on each objective of the course	5	4.4000	.89443
Encourage students to incorporate their own goals into the work of the course	6	4.1667	.98319
Further clarify course objectives through online discussion	7	3.7143	1.70434
Ask students to restate objectives in their own words	5	3.4000	2.19089

KS&G Principle 3—provide prompt and constructive feedback—ranked fourth highest by mean. The following instructional strategies for this principle in order of highest to lowest mean are shown in Table 23: (a) require students to make weekly contributions; (b) advise students in need of remedial work of ways to get needed help; (c) provide support related to risk or difficulties each student faces as the course progresses; (d) use role-playing, simulation, or activities to supplement lecture and discussion in learning; and (e) adapt challenges to students based on differences in their prior knowledge and skill level. The IPI showed a consistent mean for requiring students to make weekly contributions and provide support related to risk of difficulties. For the other three strategies in this KS&G principle, the means were lower for ease of use than frequency of use. These results were confirmed in the faculty interviews when faculty indicated that some synchronous activities were difficult to use due to time restraints.

This finding indicates that it is not as easy to advise student in need of remedial work concerning ways to get needed help as it is to use role-playing, simulation, or activities to supplement lecture and discussion, faculty do so more frequently. The *N* in Table 23 equals the number of faculty responses.

Table 23

Mean Ranking for KS&G Principle 3 Strategies by Ease of Use

Strategy	*N*	*M*	*SD*
Require students to make weekly contributions	7	4.7143	.75593
Advise students in need of remedial work of ways to get needed help	7	4.4286	.78680
Provide support related to risk or difficulties each student faces as the course progresses	7	4.1429	.89974
Use role-playing, simulation, or activities to supplement lecture and discussion in learning	5	3.8000	1.64317
Adapt challenges to students based on differences in their prior knowledge and skill level	5	3.8000	1.30384

KS&G Principle 6—link inquiries to genuine problems or issues of high interest to the learners, thus enhancing motivation and accelerating their learning—placed fifth for highest mean. Table 24 shows the following instructional strategies for this principle in order of highest to lowest mean: (a) learn of students' difficulties relevant to the course and use this information in developing instruction; (b) pose learning tasks in terms of solving problems as well as in terms of accumulating knowledge; (c) provide multiple opportunities for students to apply their learning; (d) elicit student analysis of what worked and did not work in their problem-solving experiences; and (e) if students seeks licensure, certification, or other testament to meet professional standards, I relate learning objectives to that goal. Faculty revealed that, while it was easier to elicit student analysis of what worked and did not work in their problem-solving experiences and relate learning

objectives to licensure and certification, faculty did not use these strategies as frequently. Faculty interviews also verified the IPI findings. The *N* in Table 24 equals the number of faculty responses.

Table 24

Mean Ranking for KS&G Principle 6 Strategies by Ease of Use

Strategy	*N*	Mean	*SD*
Learn of student difficulties relevant to the course and use this information in developing instruction	8	4.2500	.88641
Pose learning tasks in terms of solving problems as well as in terms of accumulating knowledge	6	4.0000	.89443
Provide multiple opportunities for students to apply their learning	7	3.8571	1.46385
Elicit student analysis of what worked and did not work in their problem-solving experiences	6	3.8333	1.83485
If student seeks licensure, certification, or other testament to meet professional standards, I relate learning objectives to that goal.	4	3.7500	1.89297

KS&G Principle 5—elicit active and critical reflection by learners on their growing experience base—ranked sixth in by highest mean. The following instructional strategies for this principle in order of highest to lowest mean are shown in Table 25: (a) provide opportunities for collaborative learning, (b) encourage students to consider alternative interpretations of their experience and the experiences of others, (c) encourage students to questions assumptions made by others or by themselves, (d) encourage students to try more than one approach to solving complex problems, (e) encourage students to think about effectiveness of their thinking, (f) arrange for students to conduct well-designed research and case analyses, (g) check student inferences for validity and encourage students and their peers to do the same, and (h) encourage students to question and monitor the credentials of alleged authorities in the field. The only strategy with a

lower mean for ease of use than frequency of use was encourage students to consider alternative interpretations of their experiences and the experiences of others. This result indicates that, while it is easier to provide the students the opportunity for collaborative learning, the faculty do not do so frequently. As faculty revealed in interviews, a strategy that is easy to use is only used when it relates to the course they teach. The *N* in Table 25 equals the number of faculty responses.

Table 25

Mean Ranking for KS&G Principle 5 Strategies by Ease of Use

Strategy	*N*	*M*	*SD*
Provide opportunities for collaborative learning	6	4.5000	.83666
Encourage students to consider alternative interpretations of their experience and the experiences of others	6	4.3333	.81650
Encourage students to question assumptions made by others or by themselves	8	4.2500	1.03510
Encourage students to try more than one approach to solving complex problems	6	4.1667	.98319
Encourage students to think about effectiveness of their thinking	8	4.1250	.99103
Arrange for students to conduct well-designed research and case analyses	8	3.6250	1.40789
Check student inferences for validity and encourage students and their peers to do the same	7	3.4286	1.39728
Encourage students to question and monitor the credentials of alleged authorities in the field	8	3.2500	1.48805

KS&G Principle 4—provide an optimal balance of challenges and support that is tailored to individual students' readiness and potential—placed seventh by highest mean. Table 26 shows the following instructional strategies for this principle in order of highest to lowest mean: (a) encourage students to draw from their experiences on the job or in other noncourse activities to assist learning, (b) expose students to different applications

of the course subject matter, (c) introduce students to a variety of cultures or subcultures, and (d) allocate a portion of the course grade to student participation in professional conferences. The strategy of exposing students to different applications of the course subject matter had the same mean for ease of use and frequency of use. While allocating a portion of the course grade to student participation in professional conferences ranked low for ease of use, it ranked even lower for frequency of use. This was the same finding as that for the student seeking licensure, certification, or other testament to meet professional standards and learning objectives being related to these goals. The *N* in Table 26 equals the number of faculty responses.

Table 26

Mean Ranking for KS&G Principle 4 Strategies by Ease of Use

Strategy	*N*	*M*	*SD*
Encourage students to draw from their experiences on the job or in other noncourse activities to assist learning	7	4.4286	.97590
Expose students to different applications of the course subject matter	8	3.7500	1.03510
Introduce students to a variety of cultures or subcultures	7	3.4286	1.51186
Allocate a portion of the course grade to student participation in professional conferences	5	2.0000	1.73205

KS&G Principle 7—develop learners' effectiveness as learners early in their education—was the lowest ranked KS&G principle by highest mean. The following instructional strategies for this principle in order of highest to lowest mean are shown in Table 27: (a) make students aware early in the course of the importance of being a skillful learner, (b) design every assignment to enhance students' skills as learners, (c) make students aware of the characteristics of highly effective learning, (d) encourage students

to evaluate their efforts to become more proficient learners, (e) encourage students to use tools and skills that enhance their learning while also saving their time, and (f) assess students' skills as learners at the beginning of the learning experience. The strategy for making students aware early in the course of the importance of being a skillful learner produced the same mean for ease of use and frequency of use. All other strategies for this principle ranked a higher mean for ease of use than frequency of use. KG&S principle 7 ranked the lowest for ease of use and frequency of use. The *N* in Table 27 equals the number of faculty responses.

Table 27

Mean Ranking for KS&G Principle 7 Strategies by Ease of Use

Strategy	*N*	*M*	*SD*
Make students aware early in the course of the importance of being a skillful learner	7	3.7143	1.25357
Design every assignment to enhance students' skills as learners	6	3.6667	1.21106
Make students aware of the characteristics of highly effective learning	5	3.4000	1.51658
Encourage students to evaluate their efforts to become more proficient learners	6	3.0000	1.67332
Encourage students to use tools and skills that enhance their learning while also saving their time	6	2.8333	1.16905
Assess students' skills as learners at the beginning of the learning experience	6	2.5000	1.51658

Level of Proficiency

The 5-point Likert-type scale possible responses for level of proficiency ranged from *not proficient* (1) to *extremely proficient* (5). Table 28 shows the ranking of KS&G principles based on the aggregate mean for the level of proficiency of the strategies

within each principle. The *N* in Table 28 equals the number of faculty responses of items per principle.

Table 28

Ranking of KS&G Principles by Level of Proficiency

KS&G principle	*N*	*M*	*SD*
KS&G 8: Create an instructional environment that supports and encourages inquiry	8	4.7500	.70711
KS&G 1: Make learning goals and one or more paths clear	45	4.2889	1.21771
KS&G 2: Use extensive and deliberate practices	40	4.2500	.95407
KS&G 3: Provide prompt and constructive feedback	31	4.2258	.99028
KS&G 6: Link inquiries to genuine problems or issues of high interest to the learners (thus enhancing motivation and accelerating their learning)	31	4.1613	1.09839
KS&G 5: Elicit active and critical reflection by learners on their growing experience base	57	3.9649	.99937
KS&G 4: Provide an optimal balance of challenges and support that is tailored to individual student's readiness and potential	27	3.6667	1.41421
KS&G 7: Develop learners' effectiveness as learners early in their education	36	3.2222	1.39614

KS&G principle 8—create an instructional environment that supports and encourages inquiry—was the highest ranked principle by mean for level of proficiency. The faculty ranked the only strategy for this principle—being enthusiastic about the subject and students' learning about it—high (see Table 29). This principle also ranked the highest for frequency of use and ease of use as well. The *N* in Table 29 equals the number of faculty responses.

Table 29

Mean Ranking for Principle 8 Strategies by Level of Proficiency

Strategy	*N*	*M*	*SD*
Enthusiastic about the subject and students' learning about it	7	4.7143	.75593

KS&G Principle 1—make learning goals and one or more paths clear—ranked second by highest mean for level of proficiency. Table 30 shows the following instructional strategies for this principle in order of highest to lowest mean: (a) spell out a timeline for completing successive steps toward meeting the objectives, (b) state objectives in syllabus, (c) effectively introduce myself to my students at the beginning of each semester, (d) require repeated practice on each objective of the course, (e) encourage students to incorporate their own goals into the work of the course, (f) further clarify course objectives through online discussion, and (g) ask students to restate objectives in their own words. Three of these strategies ranked high for level of proficiency, ease of use, and frequency of use: spell out a timeline, state objectives in the syllabus, and effectively introduce myself to students at the beginning of each semester. During the telephone interviews, several faculty members noted the importance of a detailed syllabus in online learning. Only one faculty member commented that she used the online calendar, although others might have used it while not mentioning it in the interviews. All other strategies for this principle had a higher mean for both level of proficiency and ease of use than frequency of use. This finding suggests that some strategies faculty may feel proficient using and find easy to use are, nevertheless, not used. The *N* in Table 30 equals the number of faculty responses.

Table 30

Mean Ranking for Principle 1 Strategies by Level of Proficiency

Strategy	*N*	*M*	*SD*
Spell out a timeline for completing successive steps toward meeting the objectives	7	4.8571	.37796
State objectives in syllabus	8	4.7500	.46291
Effectively introduce myself to my students at the beginning of each semester	7	4.7143	.75593
Require repeated practice on each objective of the course	5	4.2000	1.09545
Encourage students to incorporate their own goals into the work of the course	6	4.0000	1.09545
Further clarify course objectives through online discussion	7	3.7143	1.70434
Ask students to restate objectives in their own words	5	3.4000	2.19089

KS&G Principle 2—use extensive and deliberate practices—had the third highest mean for level of proficiency. The following instructional strategies for this principle in order of highest to lowest mean are shown in Table 31: (a) provide sufficient time on tasks for each student; (b) break information into manageable steps to master recall and skill in the course; (c) continually provide feedback on student performance; (d) feedback not only indentifies errors but also includes causes and ways to correct errors; and (e) make students aware of resources for their mastery of recall and skill, including my own expertise. The means for these strategies were similar for proficiency of use, ease of use, and frequency of use. The *N* in Table 31 equals the number of faculty responses.

Table 31

Mean Ranking for KS&G Principle 2 Strategies by Level of Proficiency

Strategy	*N*	*M*	*SD*
Provide sufficient time on tasks for each student	8	4.6250	.51755
Break information into manageable steps to master recall and skill in the course	8	4.5000	.75593
Continually provide feedback on student performance	8	4.3750	.91613
Feedback not only identifies errors but also includes causes and ways to correct errors	8	4.1250	.99103
Make students aware of resources for their mastery of recall and skill, including my own expertise	8	3.6250	1.30247

KS&G Principle 3—provide prompt and constructive feedback—had the fourth highest mean for level of proficiency. Table 32 shows the following instructional strategies for this principle in order of highest to lowest mean: (a) require students to make weekly contributions; (b) advise students in need of remedial work of ways to get needed help; (c) provide support related to risk or difficulties faced by each student as the course progresses; (d) adapt challenges to students based on differences in their prior knowledge and skill level; and (e) use role-playing, simulation, or activities to supplement lecture and discussion in learning. The first three strategies for this principle produced a high mean for level of proficiency, ease of use, and frequency of use. The last two strategies—adapt challenges to student based on differences in their prior knowledge and skill level and use role-playing, simulation, or activities to supplement lecture and discussion in learning—had higher means for level of proficiency and ease of use than frequency of use. As several professors stated in the telephone interviews, they use the strategies and practices that fit the course they teach. Should the need arise, they could

incorporate these strategies in their teaching. The *N* in Table 32 equals the number of faculty responses.

Table 32

Mean Ranking for KS&G Principle 3 Strategies by Level of Proficiency

Strategy	*N*	*M*	*SD*
Require students to make weekly contributions	7	4.7143	.75593
Advise students in need of remedial work of ways to get needed help	7	4.4286	.78680
Provide support related to risk or difficulties faced by each student as the course progresses	7	4.2857	.95119
Adapt challenges to students based on differences in their prior knowledge and skill level	5	4.0000	1.00000
Use role-playing, simulation, or activities to supplement lecture and discussion in learning	5	3.4000	1.34164

KS&G Principle 6—link inquiries to genuine problems or issues of high interest to the learners, thus enhancing motivation and accelerating their learning—ranked fifth by highest mean for level of proficiency. The following instructional strategies for this principle in order of highest to lowest mean are shown in Table 33: (a) provide multiple opportunities for students to apply their learning; (b) pose learning tasks in terms of solving problems as well as in terms of accumulating knowledge; (c) learn of student difficulties relevant to the course and use this information in developing instruction; (d) elicit student analysis of what worked and did not work in their problem-solving experiences; and (e) if students seek licensure, certification, or other testament to meet professional standards, I relate learning objectives to that goal. The only strategy that produced a much lower mean for frequency of use than level of proficiency and ease of use was regarding relating objectives to licensure and certification of professional standards. This strategy had the lowest mean for this principle for frequency of use, ease

of use, and level of proficiency. The *N* in Table 33 equals the number of faculty responses.

Table 33

Mean Ranking for KS&G Principle 6 Strategies by Level of Proficiency

Strategy	*N*	*M*	*SD*
Provide multiple opportunities for students to apply their learning	7	4.4286	.78680
Pose learning tasks in terms of solving problems as well as in terms of accumulating knowledge	6	4.3333	1.03280
Learn of student difficulties relevant to the course and use this information in developing instruction	8	4.2500	.88641
Elicit student analysis of what worked and did not work in their problem-solving experiences	6	3.8333	1.32916
If student seeks licensure, certification, or other testament to meet professional standards, I relate learning objectives to that goal.	4	3.7500	1.89297

KS&G Principle 5—elicit active and critical reflection by learners on their growing experience base—ranked sixth by mean for level of proficiency. Table 34 shows the following instructional strategies for this principle in order from highest to lowest mean: (a) provide opportunities for collaborative learning, (b) encourage students to question assumptions made by others or by themselves, (c) encourage students to consider alternative interpretations of their own experiences and the experiences of others, (d) encourage students to think about the effectiveness of their thinking, (e) encourage students to try more than one approach to solving complex problems, (f) arrange for students to conduct well-designed research and case analyses, (g) check student inferences for validity and encourage students and their peers to do the same, and (h) encourage students to question and monitor the credentials of alleged authorities in the field. Providing opportunities for collaborative learning was the only strategy with a

slightly higher mean for frequency of use than level of proficiency. This result would suggest that faculty feel slightly less proficient providing opportunities for collaborative learning; however, they use it slightly more often. All other strategies in this principle had a higher mean for level of proficiency and ease of use than frequency of use. The *N* in Table 34 equals the number of faculty responses.

Table 34

Mean Ranking for KS&G Principle 5 Strategies by Level of Proficiency

Strategy	*N*	*M*	*SD*
Provide opportunities for collaborative learning	6	4.3333	.81650
Encourage students to question assumptions made by others or by themselves	8	4.2500	.70711
Encourage students to consider alternative interpretations of their own experience and the experiences of others	6	4.1667	.98319
Encourage students to think about effectiveness of their thinking	8	4.1250	.99103
Encourage students to try more than one approach to solving complex problems	6	4.0000	.89443
Arrange for students to conduct well-designed research and case analyses	8	3.8750	.99103
Check student inferences for validity and encourage students and their peers to do the same	7	3.5714	1.39728
Encourage students to question and monitor the credentials of alleged authorities in the field	8	3.5000	1.19523

KS&G Principle 4—provide an optimal balance of challenges and support that is tailored to individual student's readiness and potential—ranked seventh by mean for level of proficiency. The following instructional strategies for this principle in order from highest to lowest mean are shown in Table 35: (a) encourage students to draw from their experiences on the job or in other noncourse activities to assist learning, (b) expose students to different applications of the course subject matter, (c) introduce students to a

variety of cultures or subcultures, and (d) allocate a portion of the course grade to student participation in professional conferences. All strategies for this principle had a higher mean for level of proficiency and ease of use than for frequency of use. The *N* in Table 35 equals the number of faculty responses.

Table 35

Mean Ranking for KS&G Principle 4 Strategies by Level of Proficiency

Strategy	*N*	*M*	*SD*
Encourage students to draw from their experiences on the job or in other noncourse activities to assist learning	7	4.4286	.97590
Expose students to different applications of the course subject matter	8	4.0000	1.06904
Introduce students to a variety of cultures or subcultures	7	3.4286	1.51186
Allocate a portion of the course grade to student participation in professional conferences	5	2.4000	1.67332

The last principle for level of proficiency was KS&G 7—develop learners' effectiveness as learners early in their education. This was the lowest ranked principle by mean for frequency of use, ease of use, and level of proficiency. Table 36 shows the following instructional strategies for this principle in order from highest to lowest mean: (a) design each assignment to enhance students' skills as learners, (b) make students aware early in the course of the importance of being a skillful learner, (c) make students aware of the characteristics of highly effective learning, (d) encourage students to evaluate their efforts to become more proficient learners, (e) assess students' skills as learners at the beginning of the learning experience, and (f) encourage students to use tools and skills that enhance their learning while also saving their time. The only strategy with the same mean for level of proficiency as for frequency of use was making students

aware early in the course of the importance of being a skillful learner. All other strategies had a higher mean for the level of proficiency than for frequency of use. The means for the level of proficiency were similar to those of ease of use. The *N* in Table 36 equals the number of faculty responses.

Table 36

Mean Ranking for KS&G Principle 7 Strategies by Level of Proficiency

Strategy	*N*	*M*	*SD*
Design each assignment to enhance students' skills as learners	6	3.8333	1.32916
Make students aware early in the course of the importance of being a skillful learner	7	3.7143	1.25357
Make students aware of the characteristics of highly effective learning	5	3.4000	1.51658
Encourage students to evaluate their efforts to become more proficient learners	6	3.0000	1.67332
Assess students' skills as learners at the beginning of the learning experience	6	2.6667	1.50555
Encourage students to use tools and skills that enhance their learning while also saving their time	6	2.6667	1.21106

Highest and Lowest Strategies

The top strategies identified from the IPI by frequency of use for highest aggregate mean are shown in Table 37. These strategies include (a) effectively introduce myself to my student at the beginning of each semester, (b) state objectives in syllabus, (c) require students to make weekly contributions, (d) be enthusiastic about the subject and students' learning about it, and (e) continually provide feedback on student performance. The entire faculty surveyed revealed they always introduce themselves at the beginning of the semester and state objectives in the syllabus. The use of a well-developed syllabus was mentioned by most of the professors interviewed. The practice of

requiring student to make weekly contributions ranked high by faculty for frequency of use. The SEOTE found that 61.8% of the students strongly agreed or agreed that the course was used to stimulate thoughtful discussion while 21.8% mildly agreed. While the faculty rated themselves high in regards to being enthusiastic about their subject and students' learning about it, the SEOTE found that only 54.6% of students strongly agreed or agreed that their professors were enthusiastic about online teaching; however, 32.7% mildly agreed. Over 63% students strongly agreed or agreed and 18.2% mildly agreed that supportive feedback related to course assignment was provided by faculty. The faculty indicated that continually providing feedback on student performance was frequently performed. The *N* in Table 37 equals the number of faculty responses.

Table 37

Highest IPI Frequency of Use by Aggregate Mean

Strategy	*N*	*M*	*SD*
Effectively introduce myself to my students at the beginning of each semester	7	5.0000	.00000
State objectives in syllabus	8	5.0000	.00000
Require students to make weekly contributions	8	4.7500	.70711
Enthusiastic about the subject and students' learning about it	8	4.6250	.74402
Continually provide feedback on student performance	8	4.5000	.75593

Table 38 shows the following lowest ranking strategies identified from the IPI by frequency of use by aggregate mean: (a) allocate a proportion of the source grade to students' participation in professional conferences, (b) ask students to restate objectives in their own words, (c) assess students' skills as learners at the beginning of the learning experience, (d) require repeated practice on each objective of the course, and (e) adapt

challenges to students on the basis of differences in their prior knowledge and skill level. The lowest strategies for frequency of use may be related to faculty saying they do not apply to the courses they teach. This is true for allocation of proportion of course grade to participation in professional conferences. Only one nursing professor participated in the IPI. One professor stated that she does provide students with the course objectives in the syllabus and answers any questions; however, they do not discuss them in the online discussion forums. The IPI frequency of use by aggregate mean for all strategies is in Appendix H. The *N* in Table 38 equals the number of faculty responses.

Table 38

Lowest IPI Frequency of Use by Aggregate Mean

Strategy	*N*	*M*	*SD*
Allocate a proportion of the course grade to student participation in professional conferences	8	1.1250	.35355
Ask students to restate objectives in their own words	8	1.5000	1.41421
Assess students' skills as learners at the beginning of the learning experience	7	1.8571	1.57359
Require repeated practice on each objective of the course	8	2.0000	1.51186
Adapt challenges to students based on differences in their prior knowledge and skill level	8	2.3750	1.50594

The top-ranking strategies identified by the IPI for ease of use by highest aggregate mean are listed in Table 39 and are as follows: (a) state objectives in syllabus, (b) provide sufficient time on task for each student, (c) enthusiastic about the subject and students' learning about it, (d) continually provide feedback on student performance, and (e) break information into manageable steps to master recall and skill in the course. Two of the top strategies for ease of use were also identified for frequency of use. These

strategies included stating objectives in the syllabus, being enthusiastic about the subject and students' learning about it, and continually providing feedback on student performance. Provide sufficient time on tasks for each student ranked high on the IPI for ease of use. The SEOTE Principle 5—time on task—found 66.7% of students strongly agreed or agreed and 21.4% mildly agreed with the use of this principle. While the faculty found this strategy ease to use, it did not rank as one of the top strategies for frequency of use. The *N* in Table 39 equals the number of faculty responses.

Table 39

Highest IPI Ease of Use by Aggregate Mean

Strategy	*N*	*M*	*SD*
State objective in syllabus	8	5.0000	.00000
Provide sufficient time on tasks for each student	8	4.7500	.70711
Be enthusiastic about the subject and students' learning about it	8	4.7500	.70711
Continually provide feedback on student performance	8	4.7500	.70711
Break information into manageable steps to master recall and skill in the course	8	4.7500	.46291

Table 40 shows the lowest ranking strategies identified from the IPI by ease of use by aggregate mean: (a) allocate a proportion of the course grade to students' participation in professional conferences, (b) assess students' skills as learners at the beginning of the learning experience, (c) encourage students to use tools and skills that enhance their learning while also saving their time, (d) encourage students to evaluate their efforts to become more proficient learners, and (e) encourage students to question and monitor the credentials of alleged authority in the field. Only two strategies were ranked lowest for ease of use and frequency of use. These strategies were allocating a

portion of the course grade for participation in professional conferences and assessing students' skills as learners at the beginning of the learning experience. All of the lowest ranked strategies for ease of use had a higher mean than the same strategies for frequency of use. While these strategies were ranked as easier to use, they were used less frequently. The IPI ease of use by aggregate mean for all strategies is in Appendix I. The *N* in Table 40 equals the number of faculty responses.

Table 40

Lowest IPI Ease of Use by Aggregate Mean

Strategy	*N*	*M*	*SD*
Allocate a portion of the course grade to student participation in professional conferences	5	2.0000	1.73205
Assess student skill as learners at the beginning of the learning experience	6	2.5000	1.51658
Encourage students to use tools and skills that enhance their learning while also saving their time	6	2.8333	1.16905
Encourage students to evaluate their efforts to become more proficient learners	6	3.0000	1.67332
Encourage students to question and monitor the credentials of alleged authorities in the field	8	3.2500	1.48805

The top strategies identified from the IPI by level of proficiency by highest aggregate mean are shown in Table 41: (a) spell out timeline for completing successive steps toward meeting the objectives, (b) state objectives in syllabus, (c) be enthusiastic about the subject and students' learning about it, (d) effectively introduce myself to my students at the beginning of each semester, and (e) require students to make weekly contributions. Two strategies ranked among the top strategies for frequency of use, ease of use, and level of proficiency: stating objectives in syllabus and being enthusiastic about the subjects and students' learning about it. The only strategy with a lower mean

for frequency of use than ease of use was spelling out a timeline for completing successive steps toward meeting the objectives. The *N* in Table 41 equals the number of faculty responses.

Table 41

Highest IPI Level of Proficiency by Aggregate Mean

Strategy	*N*	*M*	*SD*
Spell out a timeline for completing successive steps toward meeting the objectives	7	4.8571	.37796
State objective in syllabus	8	4.7500	.46291
Be enthusiastic about the subject and students' learning about it	8	4.7500	.70711
Effectively introduce myself to students at the beginning of each semester	7	4.7143	.75593
Require students to make weekly contributions	7	4.7143	.75593

As shown in Table 42, the lowest strategies identified from the IPI by level of proficiency by aggregate mean were as follows: (a) allocate a proportion of the course grade to students' participation in professional conferences, (b) encourage students to use tools and skills that enhance their learning while also saving their time, (c) assess students' skills as learners at the beginning of the learning experience, (d) encourage students to evaluate their efforts to become more proficient learners, and (e) ask students to restate objectives in their own words. All of the lowest strategies for level of proficiency ranked higher by mean than for frequency of use. The IPI level of proficiency by aggregate mean for all strategies is in Appendix J. The *N* in Table 42 equals the number of faculty responses.

Table 42

Lowest IPI Level of Proficiency by Aggregate Mean

Strategy	*N*	*M*	*SD*
Allocate a portion of the course grade to student participation in professional conferences	5	2.4000	1.67332
Encourage students to use tools and skills that enhance their learning while also saving their time	6	2.6667	1.21106
Assess students' skills as learners at the beginning of the learning experience	6	2.6667	1.50555
Encourage students to evaluate their efforts to become more proficient learners	6	3.0000	1.67332
Ask students to restate objectives in their own words	5	3.4000	2.19089

Quantitative Results Research Question 3

How do online students perceive teaching effectiveness of faculty? To answer the quantitative aspect of Research Question 3, the researcher conducted a student survey using the SEOTE instrument. Although 62 students submitted the SEOTE survey, only 55 surveys contained usable data. Seven of the SEOTE surveys contained only student demographic information. The Seven Principles of Good Practice provide a framework for online faculty-training programs and can be used to evaluate the effectiveness of online teaching. The demographic statistics for the SEOTE used the Seven Principles of Good Practice and a 6-point Likert-type scale with possible responses ranging from *strongly disagree* (1) to *strongly agree* (6). Table 43 shows the ranking of principles based on the aggregate mean for the strategies within each principle. The *N* in Table 43 equals the number of student responses of items per principle.

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Table 43

SEOTE Ranking of Principles

Principle	*N*	*M*	*SD*
Principle 3: Active learning	222	4.8423	1.28246
Principle 4: Prompt feedback	165	4.8000	1.18528
Principle 5: Time on task	168	4.7976	1.10827
Principle 6: High expectations	223	4.6951	1.22523
Principle 7: Diverse talents and ways of learning	278	4.6691	1.31027
Principle 1: Student faculty contact	220	4.6318	1.21478
Principle 2: Cooperation among students	165	4.5818	1.28819

Principle 3—active learning—had the highest ranking by mean ($\bar{x}$ = 4.8423; *SD* = 1.28246). The following strategy items in order from highest to lowest ranking by mean are shown in Table 44: (a) course allowed me to take responsibility for my own learning, (b) course used realistic assignments and problem-solving activities that were interesting and motivated me to do my best work, (c) course was used to stimulate thoughtful discussion, and (d) course included interactive assignments and links to examples from the Web that directly involved me in the learning process.

Active learning allows students to take responsibility for their own learning. This concept is based on the constructivist view and is at the heart of online learning (Almala, 2006; Dalgarno, 2001; Koohang, Riley, Smith, & Schreurs, 2009). The use of realistic assignments often motivates students to do their best work. Furthermore, the IPI results showed that faculty encouraged students to draw from their experiences on the job. Doing so allows students to use assignments that relate to real life. In addition, online discussion is an important way for students to interact with faculty and their peers. In the interviews, most professors stated that they use discussion in the courses they teach. One professor

even found that online discussion is the same as in the traditional classroom. The IPI found that faculty require students to make weekly contributions. This was the third highest ranked strategy identified by the IPI for frequency of use. The *N* in Table 44 equals the number of student responses.

Table 44

Ranking of Principle 3 Based on Aggregate Mean of Strategies

Principle 3: Active Learning	N	*M*	*SD*
Course allowed me to take responsibility for my own learning.	55	5.4545	.76541
Course used realistic assignments and problem-solving activities that were interesting and motivated me to do my best work.	56	4.7500	1.37840
Course was used to stimulate thoughtful discussion.	55	4.6000	1.40897
Course included interactive assignments and links to examples from the Web that directly involved me in the learning process.	56	4.5714	1.29133

Principle 4—prompt feedback—had the second highest ranking ($\bar{x}$ = 4.8000; *SD* = 1.18528). The following strategies in order of highest to lowest means are shown in Table 45: (a) questions about WebCT/Blackboard responded to promptly, (b) questions about course assignments responded to promptly, and (c) provided with supportive feedback related to course assignments.

Prompt feedback is essential in online education (Bangert, 2004). The literature shows that, while feedback should be prompt, it must also include what the student did correctly and what can be improved (Bangert, 2004; Puzziferro & Shelton, 2009). The students felt that their questions regarding the learning management system were responded to promptly. The faculty interviews revealed that some professors believed their students lacked the skills needed to use technology, including Blackboard. Some

professors stated that they referred all technology questions to the Help Desk at the Information Technology Department. These questions were referred to the Help Desk due to the professors' lack of time. One professor even indicated that the information for contacting the Help Desk concerning technology questions was in the syllabus. Students indicated that both questions regarding assignments were responded to promptly and provided supportive feedback for assignments. One of the highest instructional strategies identified by the IPI for frequency of use was that faculty continually provide feedback on student performance. The IPI also showed that faculty not only identify errors but also ways to correct them. One professor, when interviewed, stated that, when more than one student asked the same question, she posted the question and her response to an announcement forum. She found doing so not only assisted students but also saved her time. The *N* in Table 45 equals the number of student responses.

Table 45

Ranking of Principle 4 Based on Aggregate Mean of Strategies

Principle 4: Prompt feedback	N	*M*	*SD*
Questions about WebCT/Blackboard were responded to promptly.	55	4.9091	.92841
Questions about course assignments were responded to promptly.	55	4.8182	1.24857
Provided with supportive feedback related to course assignments	55	4.6727	1.34790

Principle 5—time on task—had the third highest ranking ($\bar{x}$ = 4.7976, *SD* = 1.10827). Table 46 shows the following strategy items in order from highest to lowest ranking: (a) course was designed to provide an efficient learning environment, (b) course was structured to be user friendly, and (c) course allowed me to complete assignments across a variety of learning environments.

The principle of time on task allows students to be productive and practice time management skills. The items in this principle are also related to the online constructivist theory and demonstrate that technology does not replace pedagogy. Technology should enhance learning by supporting a constructivist philosophy (Almala, 2006) so as to provide an effective learning environment that is user friendly. To assist the students in time management, one professor stated in the telephone interview that, in addition to the syllabus, she used the online calendar to assist students in time management, especially for assignments. The literature noted this practice as helpful (Bangert, 2005; Burgess, 2003; Grant & Thornton, 2007; Waterhouse, 2005). The *N* in Table 46 equals the number of student responses.

Table 46

Ranking of Principle 5 Based on Aggregate Mean of Strategies

Principle 5: Time on task	*N*	*M*	*SD*
Course was designed to provide an efficient learning environment.	56	4.8750	1.02802
Course was structured to be user friendly.	56	4.8214	1.09722
Course allowed me to complete assignments across a variety of learning environments.	56	4.6964	1.20483

Principle 6—having high expectations—had the fourth highest ranking ($\bar{x}$ = 4.6951; *SD* = 1.22523). The following strategy items from highest to lowest ranking are shown in Table 47: (a) assignments for this course were of appropriate difficulty level, (b) course used examples that clearly communicated expectations for completing course assignments, (c) course used realistic assignments and problem-solving activities related to situations that I am likely to encounter outside of this course or in future jobs

situations, and (d) course provided good examples and links to other examples published on the Web that helped to explain concepts and skills.

This principle encourages faculty to use good examples for students to follow. These examples and guidelines assist students in producing quality work (Bangert, 2004). When instructors expect more from students, the students deliver more. In the faculty interviews most of the professors commented on the importance of a well-developed syllabus. One professor commented that a well-developed syllabus is even more important in the online environment. The syllabus should include course goals and objectives and state expectations for the course. The faculty interviews findings are supported by the literature (Bailey & Card, 2009; Grant & Thornton, 2007; Waterhouse 2005). The *N* in Table 47 equals the number of student responses.

Table 47

Ranking of Principle 6 Based on Aggregate Mean of Strategies

Principle 6: High expectations	*N*	*M*	*SD*
Assignments for this course were of appropriate difficulty level.	56	4.8571	1.13504
Course used examples that clearly communicated expectations for completing course assignments.	55	4.8182	1.12367
Course used realistic assignments and problem-solving activities related to situations that I am likely to encounter outside of this course or in future jobs situations.	56	4.6964	1.29221
Course provided good examples and links to other examples published on the Web that helped to explain concepts and skills.	56	4.4107	1.31808

Principle 7—diverse talents and ways of learning—had the fifth highest ranking ($\bar{x}$ = 4.6691; *SD* = 1.31027). Table 48 shows the following strategy items from highest to lowest ranking: (a) instructor was respectful of students' ideas and views, (b) course was

designed so that technology would minimally interfere with learning, (c) course used a variety of assignments and activities that allowed students to demonstrate understanding of critical course concepts, (d) flexibility was permitted when completing course assignments, and (e) students were given choices about the types of assignments that they would complete to demonstrate learning of important course concepts.

This principle states that students should be respected for their prior knowledge, learning styles, culture, and age (Bangert, 2004; Rovai, 2007). The findings for this principle suggest that the students felt respected by the faculty. The students also stated that the faculty used a variety of assignments and activities that were flexible. The telephone interviews with the professors revealed that they used instructional techniques that appealed to different learning styles, including video, audio lectures, websites, and written material. The literature also identified these practices as being effective (Bangert, 2004; Palloff & Pratt, 2003; Rovai, 2007; Waterhouse, 2003). Several of the faculty interviewed stated that attending the Master Certification program to teach online assisted them in using these tools and techniques. The lowest ranking item, having the lowest mean, in the SEOTE indicated that students were given choices about the types of assignments that they would complete to demonstrate learning of important course concepts. While the professors noted they used group-learning activities, the researcher did not ask the professors whether they offered students a choice of assignments. The *N* in Table 48 equals the number of student responses.

Table 48

Ranking of Principle 7 Based on Aggregate Mean of Strategies

Principle 7: Diverse talents and ways of learning	*N*	*M*	*SD*
Instructor was respectful of students' ideas and views.	55	5.2909	.91637
Course was designed so that technology would minimally interfere with learning.	56	4.8929	1.20119
Course used a variety of assignments and activities that allowed students to demonstrate understanding of critical course concepts.	56	4.6071	1.18596
Flexibility was permitted when completing course assignments.	55	4.6000	1.35537
I was given choices about the types of assignments that I would complete to demonstrate learning of important course concepts.	56	3.9643	1.48892

Principle 1—student faculty contact—had the sixth highest ranking ($\bar{x}$ = 4.6318; *SD* = 1.21478). Table 49 shows the following strategy items in order from highest to lowest ranking: (a) instructor communicated effectively, (b) instructor accessible outside the course, (c) instructor was enthusiastic about online teaching, and (d) amount of contact with instructor was satisfactory.

The principle of student-faculty contact builds positive relationships and bonds between students and faculty (Baily & Card, 2009; Bangert, 2004; Puzziferro & Shelton, 2009; Waterhouse, 2005). The students ranked the faculty high in the items for this principle. These ranking correlated with the faculty interviews in which the professors stated they used online announcements, electronic discussion, e-mail, and blogs. The IPI results were high for the practices relating to the SEOTE items for this principle, including faculty introductions at the beginning of the semester, faculty being enthusiastic about students learning about their subject, and faculty continually providing

feedback on student performance. The *N* in Table 49 equals the number of student responses.

Table 49

Ranking of Principle 1 Based on Aggregate Mean of Strategies

Principle 1: Student faculty contact	*N*	*M*	*SD*
Instructor communicated effectively	55	4.7818	1.03084
Instructor accessible outside the course	55	4.6182	1.23964
Instructor was enthusiastic about online teaching	55	4.6000	1.16428
Amount of contact with instructor was satisfactory	55	4.5273	1.41231

Principle 2—cooperation among students—was the principle with the lowest ranking ($\bar{x}$ = 4.5818; *SD* = 1.28819). The following strategy items in order from highest to lowest ranking are shown in Table 50: (a) felt comfortable interacting with instructor and other students, (b) course structured to discuss assignments with other students, and (c) course included activities and assignments that provided opportunities for students to interact with one another.

This principle supports social learning interaction among students. Cooperative learning is often accomplished through team projects, discussion boards, chats, and e-mail (Bailey & Card, 2009; Bangert, 2004; Waterhouse, 2005). The students did feel comfortable with the instructor and other students and could discuss assignments with their peers. The lowest ranked item in this principle was the courses included activities and assignments that provided the opportunity to interact with other students. The interviews with the faculty revealed that most professors used e-mail discussion as a means to communicate with faculty and peers. In the IPI survey, faculty stated that they did provide opportunities for collaborative learning. It seems that the opportunity for

students to interact with each other is provided. The *N* in Table 50 equals the number of student responses.

Table 50

Ranking of Principle 2 Based on Aggregate Mean of Strategies

Principle 2: Cooperation among students	*N*	*M*	*SD*
Felt comfortable interacting with instructor and other students	55	4.8182	1.09021
Course structured to discuss assignments with other students	55	4.7091	1.16544
Course included activities and assignments that provided opportunities to interact with one another	55	4.2182	1.51157

The following top five items the students identified from the SEOTE, according to aggregated means, are shown in Table 51: (a) course allowed me to take responsibility for my own learning, (b) instructor was respectful of student's ideas and views, (c) questions about WebCT/Blackboard were responded to promptly, (d) course was designed so that technology would minimally interfere with learning, and (e) course was designed to provide an effective learning environment.

Several of the top five items identified in the SEOTE results are related to the constructivist theory. This theory, on which the Seven Principles of Good Practice were based, appears to be evident in the design of the online learning environment, faculty-training, and faculty teaching. In addition, the SEOTE results indicate that technology questions were responded to promptly. This result was verified by the faculty interviews. The *N* in Table 51 equals the number of student responses.

Table 51

Top SEOTE Items Based on Aggregate Mean

Item	*N*	*M*	*SD*
Course allowed me to take responsibility for my own learning.	55	5.4545	.76541
Instructor was respectful of students' ideas and views.	55	5.2909	.91637
Questions about WebCT/Blackboard were responded to promptly.	55	4.9091	.92841
Course was designed so that technology would minimally interfere with learning.	56	4.8929	1.20119
Course was designed to provide an efficient learning environment.	56	4.8750	1.02802

The five items from the SEOTE with the lowest aggregate means are shown in Table 52 are as follows: (a) students were given choices about the types of assignments that they would complete to demonstrate learning of important course concepts, (b) course included activities and assignments that provided opportunities to interact with one another, (c) course provided me with good examples published on the Web that helped explain concepts and skills, (d) amount of contact with instructor was satisfactory, and (e) course included interactive assignments and links to examples from the Web that directly involved students in the learning process.

The lowest ranked items on the SEOTE, four of the five items had a $\bar{x} > 4.0$. The faculty interviews revealed that faculty used discussion, e-mail, blogs, and announcement posting to communicate with students, and these tools also allow students to interact with their peers. Faculty also provided a well-developed syllabus that offered guidelines on assignment, examples, and objectives. However, the SEOTE results suggest that students would like more choices of assignments to demonstrate learning concepts. Appendix K

contains the results of all items from the SEOTE by item based on aggregate means. The *N* in Table 52 equals the number of student responses.

Table 52

Lowest SEOTE Items Based on Aggregate Mean

Item	*N*	*M*	*SD*
I was given choices about the types of assignments that I would complete to demonstrate learning of important course concepts.	56	3.9643	1.48892
Course included activities and assignments that provided opportunities to interact with one another.	55	4.2182	1.51157
Course provided good examples and links to other examples published on the Web that helped to explain concepts and skills.	56	4.4107	1.31808
Amount of contact with instructor was satisfactory.	55	4.5273	1.41231
Course included interactive assignments and links to examples from the Web that directly involved me in the learning process.	56	4.5714	1.29133

Qualitative Results Research Question 1

After completing an online faculty-training program, what effective teaching practices do faculty use in their online teaching and why? In addition to the quantitative data gathered and presented using the IPI faculty survey, the qualitative data of faculty interviews also added insight for answering Research Question 1. One professor commented, “I do use video presentation and audio files so the students have a varied learning style.” The literature also documented this practice (Bangert, 2004; Palloff & Pratt, 2003; Rovai, 2007; Sarasin, 1999).

Furthermore, most professors stated that they used asynchronous discussion threads, and the literature verified the usefulness of online discussion (Bailey & Card, 2009; Bangert, 2004; Comeaux, 2005; Mukawa, 2006; Palloff & Pratt, 2005; Puzziferro

& Shelton, 2009; Stemwedel, 2005; Waterhouse, 2005; Wilson, Pollock, & Hamann, 2007). One professor added, "[Online] discussion is basically the same as in the classroom discussion." Another professor found it important to assist the students with time on tasks. She stated, "I use both a syllabus and calendar. The information from the syllabus in not repeated on the calendar; it just provides the due dates of assignments to help them plan." Grant and Thornton (2007) and Waterhouse (2005) found online calendars assisted students with time management. The professor commented, "If two students send the same question to me, I then post an announcement to the class." Most faculty stressed the importance of a well-designed and detailed syllabus, also noted by Bangert (2004).

Qualitative Results Research Question 2

After completing an online faculty-training program, what keeps faculty from using effective teaching practices in their online teaching? In order to answer Research Question 2, the researcher conducted qualitative data by conducting faculty telephone interviews. The IPI responses served as a guide. Seven of the eight professors who completed the IPI provided contact telephone information and were included in the interviews.

When asked to identify barriers that prevented implementation of the instructional strategies, five of seven professors identified time as the major barrier. In fact, time was the most common barrier identified in the faculty interviews. One professor stated, "Time is the most significant barrier. Making presentations using video takes a great deal of time and effort." Another professor added, "Time is a major barrier because the course moves at a fast rate." A third professor stated, "Time to develop materials (lectures, etc.).

It takes longer in an online class." A last comment was "I always want to enhance my courses more but often am limited by time. I would like to have time to use Captivate but it is time consuming."

While one professor identified time as a barrier, she also added that, once time is spent preparing material for the online classes, it could work from semester to semester with minor revisions. Reusing materials helped save time, which instructors need each week for face-to-face classes. This barrier of time was in line with the findings in the literature (Keeton, 2004; Koehler, Mishra, Hershey, & Peruski, 2004; Warren, 2005).

Two professors responded that many of the strategies did not apply to the courses they teach. One stated, "I use the ones that fit the course. Some do not fit the course I teach, which is composition writing." Another professor stated, "The course I teach online does not lend itself to a lot of the strategies listed, but I feel I am skilled in incorporating them should there be a need. I try to address many of the points (objectives, etc.) in the syllabus and discussions." He added, "While the students may think they want instructions in various formats, when I've experimented, they have not been eager to use all the possible tools. I use the strategies and pedagogy that apply to the course I teach." These responses could explain why faculty who noted they never used the instructional strategy did not respond to the ease of use and level of proficiency.

Two professors did not use the learning activities and games because of synchronous issues. One professor stated, "It is not possible to have all students participate in activities online at the same time." Another added, "I do use online discussion, but it doesn't work very well in this course. It is hard for all the students to be online together." Most professors noted they used asynchronous discussion and activities.

Simonson, Samaldino, Albright, and Zvacek (2006) found such responses to be caused by the nature of synchronous versus asynchronous tools.

The emerging theme from the faculty telephone interviews was that time was a major barrier to incorporating some of the instructional strategies. In addition, faculty might not incorporate the instructional strategies because they did not apply to or fit the courses taught. The preferred styles of discussion were asynchronous rather than synchronous discussion because of the difficulty of having everyone online at the same time. Professors indicated using instructional strategies and practices that promoted active learning and varied learning styles. They also identified the importance of the well-developed syllabus and assisting students with time management.

Summary

This chapter presented the demographics of the faculty and student participants. It also offered the findings of both the quantitative and qualitative data. The IPI faculty survey revealed the KS&G principles used by the faculty in terms of frequency of use, ease of use, and level of proficiency means. The chapter noted instructional strategies provided in order of mean for frequency of use, ease of use, and level of proficiency. The results of the SEOTE survey were included. That survey identified student perceptions of the teaching effectiveness of the faculty. The findings of the SEOTE illustrated the principles of good practice and individual items by means. The findings of the faculty telephone interviews yielded several themes that will be discussed in more detail in the next chapter.

Chapter 5

Conclusion, Implications, Recommendations, and Summary

This chapter includes conclusions from the quantitative and qualitative research findings. It delineates the strengths, weaknesses, and limitations of the study. The chapter presents implications for online faculty, online-faculty development trainers, and administrators. This chapter also discusses the lower than anticipated survey response rate. In addition, the chapter offers recommendations for future research and summarizes the current study.

Conclusions

This study was conducted at Weber State University (WSU) in Utah. Faculty participants completed the Master Certification program for teaching online and were teaching in the online environment during the study. The student participants were members of the faculty participants' online classes. The faculty participants completed the IPI survey, and the student participants completed the SEOTE survey. Both of these instruments were based on the Seven Practices of Good Practice adapted to the online-learning environment (Bangert 2004; Keeton, 2004). Follow-up faculty telephone interviews also were used to add to the richness of the study.

Research Question 1

After completing an online faculty-training program, what effective teaching practices do faculty use in their online teaching and why? The IPI results found that faculty used many of the KS&G strategies from the above principles. These results were confirmed with the findings from the faculty telephone interviews. The highest ranked principle addressed creating an instructional environment that supported and encouraged inquiry, including the faculty being enthusiastic about their subject and teaching online. When interviewed, all professors seemed to be eager to share information regarding their teaching, experiences, and opinions. The students reported that they were comfortable interacting with instructors and other students.

The use of prompt feedback is essential in online learning (Bangert, 2004; Bolliger & Martindale, 2004; Livingston & Condie, 2006; Puzziferro & Shelton, 2009). This was the top ranked practice in KS&G Principle 2. The use of faculty feedback was confirmed by the students in the SEOTE. Communication tools used by the faculty included the use of e-mail and posting announcements. Students indicated that their questions about assignments were responded to promptly. This response could suggest that the use of e-mail and announcements is adequate in the online environment.

The use of online discussion requiring the students to make regular contributions was also ranked high. The additional finding from faculty interviews was that discussion and contributions were made using asynchronous means. The results of the SEOTE indicated that students believed they were provided the opportunity to discuss assignments with their peers.

The use of a well-developed syllabus that contained objectives, course assignments, and links to examples was identified. The IPI results indicated that all faculty participants always used this practice. The results of the SEOTE from the students confirmed this result with a high ranking and indicated that courses used examples that clearly communicated expectations for completing course assignments. The use of timelines to assist students with time management was also identified from faculty interviews. The IPI results indicated a high mean for positive responses to spelling out a timeline for completing successive steps toward meeting the objectives.

Research Question 2

After completing an online faculty-training program, what keeps faculty from using effective teaching practices in their online teaching? The qualitative information collected from the telephone interviews with the faculty provided answers to this research question. The greatest barrier identified by five of the seven professors interviewed was lack of time. One professor stated that it takes a great deal of time to make videos. Another added that she "would like to use Captivate but it is time consuming." The emerging theme implied that it takes longer to develop materials for online classes. All professors expressed a desire to use tools to improve their online classes but often could not find the time. One professor added that, while it took longer to develop material for online classes, the same information could work from semester to semester with minor revisions. This barrier of lack of time was also addressed in the literature (Keeton, 2004; Koehler, Mishra, Hershey, & Peruski, 2004; Warren, 2005).

Two professors noted using those strategies and principles that applied to their courses. One stated, “I use the ones that fit the course. Some do not fit the course I teach, which is composition writing.” Another professor stated, “The course I teach online does not lend itself to a lot of the strategies listed, but I feel I am skilled in incorporating them should there be a need. I try to address many of the points (objectives, etc.) in the syllabus and discussions.” He also added, “While the students may think they want instructions in various formats, when I’ve experimented, they have not been eager to use all the possible tools. I use the strategies and pedagogy that apply to the course I teach.” This response would explain why many of the strategies were reported with a higher mean for proficiency of use than for frequency of use. This result is in line with the suggestion from Keaton (2004) that not all strategies are necessary to be successful in online teaching.

Two professors reported that they did not use learning activities such as role-playing or games because of synchronous issues. For example, having all students online at the same time was almost impossible. Most of the faculty used online discussion and other asynchronous activities. The literature noted capacity for simultaneous access as one downfall of synchronous online-learning activities (Simonson, Samaldino, Albright, & Zvacek, 2006).

All of the KS&G principles resulted in a $\bar{x} = 3.2$ or greater for frequency of use. The same KS&G principles for ease of use had a higher mean than frequency of use at $\bar{x} = 3.96$ or greater. Level of proficiency for the KS&G principles also revealed a greater mean than frequency of use at $\bar{x} = 3.96$ or greater. Many of the means for frequency of use were less than those for ease of use and level of proficiency. This result would

suggest that, even when a principle is easy to use and the faculty feel proficient in using it, the principle is sometime not used. This finding could be explained by the comments made by several professors in the telephone interviews that they use the strategies or practices needed in the classes they teach. One professor added that, if the need should arise to use other practices, she felt that she could do so.

Research Question 3

How do online students perceive teaching effectiveness of the faculty? Active learning was the highest ranked principle identified by the students on the SEOTE survey. This principle revealed the course allowed students to take responsibility for their learning, had realistic assignments, stimulated thoughtful discussion, and included interactive assignments. These findings were also identified using the IPI faculty survey and faculty interviews. In fact, one professor stated that online discussion is basically the same as it is in the traditional classroom.

The students also indicated that their questions were answered promptly and supportive feedback was provided by the faculty. As noted in the faculty interviews, some of the faculty deferred technology and learning platform questions to the Help Desk in the Information Technology Department. No matter who answered the students' questions, the students ranked this item the highest for the prompt feedback principle. The faculty provided feedback not only identifying errors but also showing ways to correct them.

The principle regarding diverse talents and ways of learning indicated that faculty should be respectful of students' ideas and views, courses should be designed so that

technology would minimally interfere with learning, and courses should have a variety of assignments and activities. The IPI found that faculty break information into manageable steps to master recall and skill in the course. The results of both the SEOTE and the IPI showed high mean results in regards to the course development and pedagogy practices. This finding is in line with good practices and recommendations from the literature (Bangert, 2006; Palloff & Pratt, 2001; Wiesenmayer, Kupczynski, & Ice, 2008).

The top-ranked item identified by students in the SEOTE was that the course allowed them to take responsibility for their own learning ($\bar{x}$ = 5.4545; *SD* = .76541). The lowest ranked item was related to students being provided with choices about the types of assignments to be completed ($\bar{x}$ = 3.9643; *SD* = 1.48891). This result would suggest that the faculty may want to consider providing alternative choices when choosing assignments to complete. However, this practice may not be possible in all courses as indicated by participants in faculty interviews.

The SEOTE mean results from the study by Bangert (2006) were higher than the results of this study with three exceptions: the course allowed students to take responsibility for their own learning, the course was designed so that technology would minimally interfere with learning, and students were given choices about the types of assignments to complete to demonstrate learning of important course concepts. These different results could be explained by Bangert (2006) having both undergraduate and graduate student participants and a much larger number of participants (*N* = 807). The researcher found it interesting that both studies reported the same item as being the lowest ranked.

Master Certification Program at WSU

In answering Research Question 3, all of the professors interviewed were glad they attended the Master Certification Program at WSU. One professor stated, "I learned to use tools and applications for online teaching." She had taught ten online classes prior to teaching at WSU and she added, "I learned to use tools correctly that fits with the pedagogical principles. I was using blogs for student interaction and changed to discussion boards after attending the training." This demonstrated a true change in practice. Another professor reported, " Learning to use the programs for teaching online was a big help." Another third stated, "The training was very beneficial." Only one of the professors noted, "I would like to have spent more time on the technology aspect." She added that some disciplines were more comfortable and proficient with technology.

Professors benefited from the pedagogy aspect of the training as well as the technology aspect. "I gained awareness and knowledge on how to teach online. I also learned skills of how to use online tools." One person stated, "I do teach more online classes due to completing the Master Certification program. The pedagogy component of the training was very beneficial." The last professor expressed, "Training made me very comfortable with technology. It provided more options with technology and teaching practices. I now use more practices to address different student's learning styles."

Summary

Faculty-training to teach in the online environment comprises both technology and pedagogy. This study reinforces the need for both aspects of training. While the

faculty needs the ability to use the technology and tools to teach online, they must also know the principles and instructional strategies for good online teaching.

This study used the IPI faculty survey to identify the frequency of use, the ease of use, and level of proficiency of instructional strategies using the Seven Principles of Good Practice. Findings revealed that faculty used principles that related to the online course they taught. Many of the means for the instructional strategies were higher for ease of use and level of proficiency than for frequency of use and confirmed through the follow-up faculty telephone interview. Faculty also stated if the need should arise to use other instructional strategies, they were proficient and capable of doing so. One professor commented, "I think the way I enhance the learning skills of my students is more subtle and not so overt as was indicated by the questions on this survey."

Lack of time was the most identified barrier that prevented faculty from implementing any instructional strategy. This requires investigation with additional input from faculty and administration. Only one professor would like to have spent more time on technology in the online training program.

Based on comments received during telephone interviews, there were noticeable changes in online teaching practices after the faculty attended the Master Certification program. This was true for faculty who had taught online at other institutions prior to attending the training program at WSU. It was also noteworthy that none of the professors interviewed had a negative comment or complaint regarding the training program. The Master Certification at WSU is very beneficial for its faculty and supplies them with the training in technology and pedagogy required to teach effectively in the

online environment. The qualitative findings played a key role in gaining unique insight to both teaching practices and identifying barriers.

The SEOTE results found that the students perceived the faculty used the Seven Principles of Good Practice. Principle 3: active learning more frequently than Principle 2: cooperation among students. The findings of this study should not be generalized to other universities or colleges due to small sample size.

Delineated Strengths, Weaknesses, and Limitations

The major strength of this study was using a mixed method. The qualitative data (faculty telephone interviews) added richness and perspective to the quantitative data of the IPI and SEOTE surveys. This study was also conducted at a university that is committed to the success of both its online faculty and students. This commitment is demonstrated by requiring all online faculty to attend the Master Certification program to teach in the online environment.

The major weakness of this study was the small sample size. Even using a case study format, a larger sample size would be beneficial. The original study using the IPI survey conducted by Keeton (2004) also had a small sample size of only eight faculty participants. Even though Keeton reported that this was part of an ongoing study, no other studies were found in the literature to date. In order to increase the student sample size it would have been beneficial to include all online students enrolled during the survey period. All online faculty complete the Master Certification program thus it should not change the results of the study. This study only included those students that were currently enrolled in the faculty participants' classes.

Limitations for this study included employing only one university. Data came from only two semesters. Data collection was conducted at the end of the summer and fall semesters. If the surveys were conducted earlier in the semester the number of responses may have been higher. Completion of student and faculty surveys were voluntary, thus presenting potential for response bias. During the faculty telephone interviews, some professors were pressed for time. Faculty interviews were conducted at the end of the semester. Conducting faculty interviews when the professors had more time may allow additional information to be gathered.

Implications

Implications of this study involve online faculty, online faculty development trainers, and administrators. The study underscores the importance of attending a training program in order to teach in the online environment. Being a subject expert in a discipline and being certified or trained to teach in the online environment could increase teaching effectiveness. Instructors should be proficient in using instructional strategies for future teaching, should seek additional assistance with technology as needed, and should consider giving choices about the types of assignments to be completed that allows students to demonstrate the learning of important course concepts. Providing students choices of assignments to complete in order to demonstrate learning was the lowest ranked item identified in the SEOTE with a mean of less than 4, mildly agree.

This study investigated the effectiveness of training for faculty to teach in the online environment. Online developers should continue to provide both technology and

pedagogy training. They should assess the faculty's level of technology and be aware that some faculty need more training in technology than others.

This study found that faculty actually use the principles learned in training programs to teach in the online environment. Administrators should require all faculty that teach online to complete a certification program. This program prompted changes in faculty who had been teaching online prior to teaching where certification was required. Administrators should consider a study to address the lack of time as a barrier to implementing more effective teaching strategies, and to address new online student readiness to use the learning platform and programs necessary to be successful in the online environment.

Recommendations for Future Research

Future research recommendations include repeating the study with a larger sample size. Conducting a longitudinal study would also increase the sample size of both the faculty and students. It would be beneficial to repeat this study at a college or university with a larger online student population or an online college or university. Having a larger sample size of both faculty and students would allow the researcher to study the differences in demographics of the participants. Faculty demographics could include number of online classes taught, teaching displine, and level of education. Student demographic could include number of classes completed, gender, and age. This study could also be conducted using a blended or hybrid population. Future research could also be conducted this study using online graduate students in place of

undergraduate students. Conducting additional studies using the IPI and the SEOTE surveys would add to the body of knowledge in the literature.

The faculty identified time as the most common barrier, which requires examination through input from faculty and administration. The qualitative data revealed students often do not know how to use the technology required for the online learning environment. The SEOTE demographic section could inquire whether the student completed the optional tutorial or orientation. The Information Technology help desk could investigate the most commonly identified student issues and note whether these issues are present in the online student tutorial or orientation.

Summary of the Study

Enrollment in online classes and programs is at an all time high. In fall, 2010 there were 5.6 million students enrolled in at least one online course (Allen & Seaman, 2010). With the substantial growth in online education comes an increased demand for faculty who possess online teaching skills (Hixon, Zamojski, & Buckenmyer, 2011; Pagliari, Batts, & McFadden, 2009; Palloff & Pratt, 2011). Many colleges and universities offer faculty-training in online teaching in order to meet this demand (Pagliari, Batts, McFadden, 2009; Palloff & Pratt, 2011). Faculty who teach in the traditional classroom may not have the skills necessary to facilitate learning in the online environment. Palloff and Pratt (2001) found that faculty could not intuitively know how to facilitate an online course. Wiesenmayer, Kupczynski, and Ice (2008) noted faculty need training not only in the use of technology but also in the art of online teaching.

Weber State University (WSU) began as Weber State Academy in 1889 in Ogden, Utah. In 1933, the academy became a state junior college, and in 1991, the college became WSU. The Master Online Teacher Certification program at WSU assists professors interested in cultivating exemplary online courses. This certification includes an online course, face-to-face workshops, and hands on training. The faculty learns how to use valuable tools and concepts to increase the interactivity and pedagogical expertise of their classes (Weber State University, 2011).

The literature showed three elements necessary to have successful online courses and programs: training the faculty, supporting the faculty in teaching online, and designing the course taught in an online environment (Lehmann, 2004; Zhen, Garthwait, & Pratt 2008). Wang (2009) stated that the professional development leg of the triangle should include a faculty needs assessment, faculty training, and the evaluation of the training. Several training method options offer online faculty development, including master's degrees and certification programs, faculty candidate programs, workshops, and mentoring. These training options vary in content, length of training, and outcome.

The constructivist view of learning places the learner at the center of learning. The instructor acts as a guide or facilitator (Dalgarno, 2001; Almala, 2006). Almala (2006) found the principles of constructivism as keys to a quality e-leaning environment. Teaching in both the traditional and online classroom requires the use of sound constructivist principles. The use of technology does not replace using these principles to enhance learning by supporting constructivist philosophy. Paloff and Pratt (1999) concurred that technology by itself cannot change pedagogy. Students learn from

effective teaching, not from technology. Both technology and pedagogy are essential elements in online training for faculty.

Chickering and Gamson (1987) used constructivist-based principles to compile their Seven Principles of Good Practice for effective teaching. This framework provides initial guidance for both the design and delivery of online courses. Bangert (2004) further developed Chickering and Gamson's work to create a final model, including: "(1) student-faculty contact; (2) cooperation among students; (3) active learning; (4) prompt feedback; (5) time on task; (6) high expectations; and (7) respect for diverse talents and ways of learning" (Bangert, p. 220).

Waterhouse (2005) stated the Seven Principles of Good Practice applied to both the traditional and online learning environments. These principles also provide criteria for measuring good instructional practices. Bangert (2004) and Waterhouse (2005) analyzed each of the Seven Principles of Good Practice related to evaluating online teaching.

The use of the Seven Principles of Good Practice provides not only a framework for online faculty development programs but also a framework for evaluating online teaching. Therefore, this study used the Seven Principles of Good Practice as a framework to investigate how online faculty applied the newly acquired knowledge and skills learned. This might begin to fill a gap in the literature.

The researcher used the *Instructional Practices Inventory* (IPI) (Keeton, 2004) to determine how frequently faculty used instructional strategies, their ease of use, and faculty level of proficiency in the practices learned in the online faculty-training program. Keeton, Sheckley, and Krejci-Griggs (cited in Keeton, 2004) developed the IPI based on the Seven Principles of Good Practice (Chickering & Gamson, 1987). This instrument

measures faculty perceptions of use of the Seven Principles of Good Practice. Keeton, Sheckley, and Krejci-Griggs (KS&G) added an eighth principle "creating an instructional environment that supports and encourages inquiry" (p. 76).

To understand how students perceived teaching effectiveness of faculty that completed an online faculty-training program, the researcher conducted a student survey. Several studies have investigated students' perceptions of faculty use of online teaching principles. The SEOTE instrument was appropriate for this study because it used the Seven Principles of Good Practice in e-learning and used in evaluative studies of student perceptions (Bangert, 2008).

Additionally, the researcher conducted follow-up interviews, based on the results of the IPI, with faculty participants to identify factors that prevented using the application of e-learning techniques learned in the online faculty development program. The researcher conducted telephone interviews with faculty participants.

The IPI faculty survey identified the frequency of use, the ease of use, and level of proficiency of instructional strategies using the Seven Principles of Good Practice. Faculty used principles that related to the online course they taught. Many of the means for the instructional strategies were higher for ease of use and level of proficiency than for frequency of use, and confirmed by the follow-up faculty telephone interview. Faculty also stated if the need should arise to use other instructional strategies, they were proficient and capable of doing so. The SEOTE results found that the students perceived the faculty use of Principle 3: active learning the most frequently and Principle 2: cooperation among students less frequently.

The emerging theme from the faculty telephone interview was that time was a major barrier to incorporating instructional strategies. Many of the instructional strategies did not apply to the faculty's online teaching or fit the course.

There were noticeable changes in online teaching practices after the faculty attended the Master Certification program. This was true for faculty who taught at other institutions prior to attending the training program at WSU. It was also noteworthy that none of the professors interviewed had a negative comment or complaint regarding the training program. The Master Certification at WSU is beneficial for its faculty and supplies them with both training in technology and pedagogy required to teach effectively in the online environment. The qualitative findings played a key role in gaining unique insight into both teaching practices and identifying barriers. The findings of this study should not be generalized to other universities or colleges due to small sample size.

Appendix A

Permission to Use Instruments

From: Channary Uk [mailto:CUk@umuc.edu]
Sent: Thursday, June 12, 2008 3:51 PM
To: Wayne Mier
Cc: wmier@nova.edu; Husein Abdul-Hamid
Subject: RE: IPI

Dear Wayne Mier,

This is to confirm that permission to use the sample Instructional Practices Inventory (IPI) has been granted by the University of Maryland University College, the Office of Evaluation, Research, and Grants under the direction of Dr. Husein Abdul-Hamid.

Channary Uk
University of Maryland University College
Office Of Evaluation, Research and Grant
3501 University Blvd. East
Adelphi, MD 20783
Office: 240-582-2759
Fax: 240-582-2767
cuk@umuc.edu

Date: Thu, 17 Apr 2008 20:03:19 -0400 [04/17/08 20:03:19 EDT]
From: Wayne Mier <mier@nova.edu>
To: habdul-hamid@umuc.edu
Cc: mier@nova.edu
Subject: IPI Instrument
Headers: Show All Headers

Dr. Abdul-Hamid:

My name is Wayne Mier and I am a doctoral student at Nova Southeastern University. We spoke several weeks ago on the telephone. I would like permission to use your Instructional Practices Inventory (IPI). My dissertation goal is to determine whether the faculty who complete an online faculty certification program actually apply the knowledge and skills learned in this training in the online classes they teach. The IPI will provide information on faculty perceptions of best teaching practices. These best practices are the foundation of many of the online faculty-training programs. If permission were given, would you be able to send me a complete copy of the instrument? I would be happy to provide you a copy of the research when completed.

Thanks!
Wayne Mier

Date: Mon, 26 Nov 2007 18:32:22 -0700 [11/26/07 20:32:22 EST]
From: "Bangert, Arthur" <abangert@montana.edu>
To: Wayne Mier <mier@nova.edu>
Subject: RE: Permission to use Instrument

HI Wayne,

Yes, you may use the instrument that I developed. Make sure that you use the latest version found in the Journal of Educational Computing Research.

Bangert, A.W. (2006). The development of an instrument for assessing online teaching effectiveness. *The Journal of Educational Computing Research, 35*(3), 227 – 244.

Also I would like an electronic copy of your final dissertation after you have defended your research.

Good luck!

Art

Art Bangert
Assistant Professor
Department of Education
Montana State University
Bozeman, MT 59717
406-994-7424

From: Wayne Mier [mailto:mier@nova.edu]
Sent: Mon 11/19/2007 7:13 AM
To: Bangert, Arthur
Subject: Permission to use Instrument

Dr. Bangert:

My name is Wayne Mier and I am a doctoral student at Nova Southeastern University. I would like permission to use your Student Evaluation of Online Effectiveness (SEOTE) instrument you developed based on Chickering and Gamson's (1987) Seven Principles of Effective Teaching. My dissertation goal is to determine whether the faculty who complete an online faculty certification program actually apply the knowledge and skills learned in this training in the online classes they teach. If permission were given, would you be able to send me a copy of the instrument?

Thanks!
Wayne Mier

Appendix B

Student Evaluation of Online Teaching Effectiveness (SEOTE)

Student Evaluation of Online Effectiveness (SEOTE)

2. Student Demographic Information

Please complete the following student demographic information.

1. Gender

- ◯ Male
- ◯ Female

2. Age

- ◯ 18-25
- ◯ 26-30
- ◯ 31-35
- ◯ 35 and older

3. Prior online classes completed

- ◯ None
- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5 or more

Student Evaluation of Online Effectiveness (SEOTE)

3. Student Evaluation of Online Effectiveness (SEOTE)

1. Please rate each item using the following scale: Strongly Agree, Agree, Mildly Agree, Mildly Disagree, Disagree, and Strongly Disagree.

	Strongly Agree	Agree	Mildy Agree	Mildly Disagree	Disagree	Strongly Disagree
The instructor communicated effectively.	◯	◯	◯	◯	◯	◯
The instructor was enthusiastic about online teaching.	◯	◯	◯	◯	◯	◯
The instructor was accessible to me outside of the course.	◯	◯	◯	◯	◯	◯
The amount of contact with the instructor was satisfactory (e.g., e-mail, discussions, etc.).	◯	◯	◯	◯	◯	◯

2. Please rate each item using the following scale: Strongly Agree, Agree, Mildly Agree, Mildly Disagree, Disagree, and Strongly Disagree.

	Strongly Agree	Agree	Mildy Agree	Mildly Disagree	Disagree	Strongly Disagree
The course was structured so that I could discuss assignment with other students.	◯	◯	◯	◯	◯	◯
I felt comfortable interacting with the instructor and other students.	◯	◯	◯	◯	◯	◯
This course included activities and assignments that provided students with opportunities to interact with one another.	◯	◯	◯	◯	◯	◯

3. Please rate each item using the following scale: Strongly Agree, Agree, Mildly Agree, Mildly Disagree, Disagree, and Strongly Disagree.

	Strongly Agree	Agree	Mildy Agree	Mildly Disagree	Disagree	Strongly Disagree
This course included interactive assignments and links to examples from the Web that directly involved me in the learning process.	◯	◯	◯	◯	◯	◯
This course used realistic assignments and problem-solving activities that were interesting and motivated me to do my best work.	◯	◯	◯	◯	◯	◯
The course allowed me to take responsibility for my own learning.	◯	◯	◯	◯	◯	◯
The course was used to stimulate thoughtful discussions.	◯	◯	◯	◯	◯	◯

Student Evaluation of Online Effectiveness (SEOTE)

4. Please rate each item using the following scale: Strongly Agree, Agree, Mildly Agree, Mildly Disagree, Disagree, and Strongly Disagree.

	Strongly Agree	Agree	Mildy Agree	Mildly Disagree	Disagree	Strongly Disagree
My questions about WebCT/Blackboard were responded to promptly.	◯	◯	◯	◯	◯	◯
My questions about course assignments were responded to promptly.	◯	◯	◯	◯	◯	◯
I was provided with supportive feedback related to course assignments.	◯	◯	◯	◯	◯	◯

5. Please rate each item using the following scale: Strongly Agree, Agree, Mildly Agree, Mildly Disagree, Disagree, and Strongly Disagree.

	Strongly Agree	Agree	Mildy Agree	Mildly Disagree	Disagree	Strongly Disagree
The course was structured to be user friendly.	◯	◯	◯	◯	◯	◯
The course was designed to provide an efficient learning environment.	◯	◯	◯	◯	◯	◯
The course allowed me to complete assignments across a variety of learning environments.	◯	◯	◯	◯	◯	◯

6. Please rate each item using the following scale: Strongly Agree, Agree, Mildly Agree, Mildly Disagree, Disagree, and Strongly Disagree.

	Strongly Agree	Agree	Mildy Agree	Mildly Disagree	Disagree	Strongly Disagree
This course used examples that clearly communicated expectations for completing course assignments.	◯	◯	◯	◯	◯	◯
This course provided good examples and links to other examples published on the Web that helped to explain concepts and skills.	◯	◯	◯	◯	◯	◯
The assignments for this course were of appropriate difficulty level.	◯	◯	◯	◯	◯	◯
The course used realistic assignments and problem-solving activities related to situations that I am likely to encounter outside of this course or in a future job situation.	◯	◯	◯	◯	◯	◯

Student Evaluation of Online Effectiveness (SEOTE)

7. Please rate each item using the following scale: Strongly Agree, Agree, Mildly Agree, Mildly Disagree, Disagree, and Strongly Disagree.

	Strongly Agree	Agree	Mildy Agree	Mildly Disagree	Disagree	Strongly Disagree
The instructor was respectful of students' ideas and views.	◯	◯	◯	◯	◯	◯
The course was designed so that technology would minimally interfere with learning.	◯	◯	◯	◯	◯	◯
Flexibility was permitted when completing course assignments.	◯	◯	◯	◯	◯	◯
This course used a variety of assignments and activities that allowed students to demonstrate understanding of critical course concepts.	◯	◯	◯	◯	◯	◯
I was given choices about the types of activities or assignments that I would complete to demonstrate learning of important course concepts.	◯	◯	◯	◯	◯	◯

Appendix C

Faculty Invitation to Participate

Hello Professor:

You are being asked to participate in a research study about the use and effectiveness of principles learned in an online faculty-training program. Wayne Mier, a doctoral student at Nova Southeastern University, is conducting this study. You have been selected as a possible participant because you have completed the Master Teacher Certification program and are currently teaching online at Weber State University. You will be asked to complete a short faculty survey, post a survey for your students to Blackboard and participate in a short telephone interview. The data collected and findings of this study will be made available to Weber State University and the professors who participate.

The goal of this study is to investigate how faculty, who complete an online faculty-training program, utilize the knowledge and skills in the online classes they teach. Data gathered from faculty and students and faculty interviews, will serve as indications of the effectiveness of the faculty-training program. This triangular research approach will provide a complete picture of the effectiveness of faculty development. These findings will benefit instructional designers, faculty and administrators as they continue to design and deliver effective instruction.

Procedures
If you agree to be a participant in this research, you will be asked to do the following:
1. Read, sign, and return by mail the consent form. This indicates your willingness to participate.
2. Complete the confidential e-mail survey honestly and to the best of your knowledge. The process for filling out the survey will take approximately 15 – 20 minutes. The survey may be saved on your computer, completed, and returned to Wayne Mier via e-mail to mier@nova.edu OR you may print, complete, and return the consent form and the survey to Wayne Mier via postal mail *.
3. You will also be contacted to participate in a short telephone interview. This brief interview will only take approximately 5 – 10 minutes. This interview will allow the researcher to gather additional information regarding the principles and practices you use in your online teaching.
4. The student letter will also be e-mailed to you. You will be asked to copy and paste the student letter from a MS Word document inviting your students to participate in the survey to Blackboard. This letter will contain the survey instructions and the Web link to complete the survey.

Confidentiality
The records of this research will be kept completely confidential. Participants will NOT be identified by name or any other identifiable information. Thus all ANSWERS ARE COMPLETELY ANONYMOUS.

Contacts and Questions

The doctoral student conducting this study is Wayne Mier. Contact him with any questions at mier@nova.edu.

*Wayne Mier

Appendix D

Faculty Consent Form

Consent Form for Participation in the Research Study Entitled
Investigating the Use and Effectiveness of Principles Learned in an Online Faculty-training Program

Funding Source: None.

IRB approval #: wang09150901

Principal investigator
Wayne Mier, MEd, EdS.
1538 Parrish Place
Jacksonville, FL 32205
(904) 333-4323
wmier@nova.edu

Co-Investigator
Steven Terrell, EdD
3301 College
Ft. Lauderdale, Florida 33314
(954) 262-2084

Institutional Review Board
Nova Southeastern University
Office of Grants and Contracts
(954) 262-5369/Toll Free: 866-499-0790
IRB@nsu.nova.edu

Site Information
Weber State University
3848 Harrison Blvd.
Ogden, Utah 84408
(801) 626-6000

What is the study about?
You are invited to participate in a research study. The goal is to investigate how faculty who complete an online faculty-training program utilize the knowledge and skills in the online classes they teach.

Why are you asking me?
You are invited to participate in this study because you have completed the Master Teacher Certification program and are currently teaching an online class at Weber State University.

Initials: _____ Date: _____

What will I be doing if I agree to be in the study?
You will complete a short survey. The survey has 41 questions. The survey should take you no more than 15-20 minutes to complete. You will also be invited to participate in a follow-up interview. The telephone interview will take no more than 5-10 minutes.

What are the dangers to me?
Risks to you are minimal, meaning they are not thought to be greater than other risks you experience every day. If you have any concerns about the risks or benefits of participating in this study, you may contact Wayne Mier, advisors, or the university's human research oversight board (Institutional Review Board) at the numbers indicated above.

Are there any benefits to me for taking part in this research study?
There are no direct benefits to you for participating.

Will I get paid for being in the study? Will it cost me anything?
There are no costs to you or payments made for participating in this study.

How will you keep my information private?
Complete confidentiality and anonymity will be maintained during this study. Faculty participants will be assigned a faculty participant number. This will assure your confidentiality. The records of this study will be kept completely confidential unless disclosure is required by law. The Institutional Review Board and regulatory agencies may review research records.

What if I want to leave the study?
Participation in this study is voluntary. If you choose not to participate, you will not experience any penalty or loss of services provided by Weber State University or Nova Southeastern University. There is no penalty or loss of benefits for not participating or for discontinuing participation in this study.

How long will the data be retained after the completion of the study?
The data from this study will be retained for the required 36 months.

Other Considerations:
If significant new information relating to the study becomes available, which may relate to your willingness to continue to participate, this information will be provided to you by the investigators.

Initials: _____ Date: _____

Voluntary Consent by Participant:

I have read the preceding consent form, or it has been read to me, and I fully understand the contents of this document and voluntarily consent to participate in the research study entitled, *Investigating the Use and Effectiveness of Principles Learned in an Online Faculty-training Program*. All of my questions concerning the research have been answered. I hereby agree to participate in this research study. If I have any questions in the future about this study, they will be answered by Wayne Mier. A copy of this form has been given to me (you may print this form). This consent ends at the conclusion of this study.

Participant's Signature: _____ Date: _____

Witness's Signature: _____ Date: _____

Please return to:

Wayne Mier
1538 Parrish Place
Jacksonville, FL 32205

Appendix E

Student Invitation to Participate

Hello Student:

You are being asked to participate in a research study about online teaching effectiveness. Wayne Mier, a doctoral student at Nova Southeastern University, is conducting this study. You have been selected as a possible participant because you are enrolled in an online course at Weber State University.

Procedures
If you agree to be a participant in this research, you will be asked to complete an anonymous online survey honestly and to the best of your knowledge. The process for filling out the survey will take approximately 10 minutes.

Confidentiality
The records of this research will be kept completely confidential. Participants do NOT supply their names or student ID numbers, and thus all ANSWERS ARE COMPLETELY ANONYMOUS. By clicking on the link below and completing the survey, you indicate that you are a voluntary participant in the survey.

Contacts and Questions
The researcher conducting this study is Wayne Mier. Contact him with any questions at mier@nova.edu

CTRL + CLICK HERE TO TAKE SURVEY or copy and paste the following Web link into the address Web browser: http://www.surveymonkey.com/s/M677XHD

Appendix F

Permission to Conduct Study at Weber State University

WEBER STATE UNIVERSITY

DEPARTMENT OF PSYCHOLOGY

May 20, 2010

Wayne Mier
1538 Parrish Place
Jacksonville, FL 32205

Dear Wayne:

Your project "Investigating the Use and Effectiveness of Principles Used in an Online Training Program" has received an "exempt" review and is approved.

We wish you good luck with your project and remind you that any anticipated changes to the project and approved procedures must be submitted to the IRB prior to implementation. Any unanticipated problems that arise during any stage of the project require a written report to the IRB and possible suspension of the project.

A final copy of your application will remain on file with the IRB records. If you need further assistance or have any questions, call me at x6812 or e-mail me at tkay@weber.edu.

Sincerely,

Theresa Kay
Chair
Institutional Review Board

DEPARTMENT OF PSYCHOLOGY
WEBER STATE UNIVERSITY | 1202 UNIVERSITY CIRCLE | OGDEN UT 84408-1202
(801) 626-6247

Title of Project: Investigating the Use and Effectiveness of Principles Learned in an Online Training Program

Primary Investigator(s): Wayne Mier

Approval Number: 2010-AD-37

Reviewer: Theresa Stueland Kay, PhD
Institutional Review Board

Date: May 20, 2010

COMMITTEE ACTION

Your proposal (project) and consent documents have been received and classified by the Human Subjects in Research Committee

AS:

____High Risk ___Moderate Risk XX Low Risk

BY THE FOLLOWING PROCESS:

____Full board review __ Expedited review XX Exemption

The project has been:

XX Approved ____Not Approved

COMMENTS: See Attached Approval Letter

Theresa Kay 5/20/2010

HUMAN SUBJECTS IN RESEARCH CHAIR **REVIEW DATE**

INVESTIGATOR'S RESPONSIBILITY AFTER COMMITTEE ACTION

The federal regulations provide that after the committee has approved your study, you **may not** make any changes without **prior** committee approval except where necessary to eliminate apparent immediate hazards to the subjects. Further, you must report to the committee any changes that you make and any unanticipated problems involving risks to subjects or others that arise.

Appendix G

Institutional Review Board Approval

NOVA SOUTHEASTERN UNIVERSITY
Office of Grants and Contracts
Institutional Review Board

MEMORANDUM

To: Wayne Mier

From: Ling Wang, Ph.D.
Institutional Review Board

Date: Oct. 13, 2009

Re: *Investigating the Use and Effectiveness of Principles Learned in an Online Faculty Training Program*

IRB Approval Number: wang09150901

I have reviewed the above-referenced research protocol at the center level. Based on the information provided, I have determined that this study is exempt from further IRB review. You may proceed with your study as described to the IRB. As principal investigator, you must adhere to the following requirements:

1) CONSENT: If recruitment procedures include consent forms these must be obtained in such a manner that they are clearly understood by the subjects and the process affords subjects the opportunity to ask questions, obtain detailed answers from those directly involved in the research, and have sufficient time to consider their participation after they have been provided this information. The subjects must be given a copy of the signed consent document, and a copy must be placed in a secure file separate from de-identified participant information. Record of informed consent must be retained for a minimum of three years from the conclusion of the study.

2) ADVERSE REACTIONS: The principal investigator is required to notify the IRB chair and me (954-262-5369 and 954-262-2020 respectively) of any adverse reactions or unanticipated events that may develop as a result of this study. Reactions or events may include, but are not limited to, injury, depression as a result of participation in the study, life-threatening situation, death, or loss of confidentiality/anonymity of subject. Approval may be withdrawn if the problem is serious.

3) AMENDMENTS: Any changes in the study (e.g., procedures, number or types of subjects, consent forms, investigators, etc.) must be approved by the IRB prior to implementation. Please be advised that changes in a study may require further review depending on the nature of the change. Please contact me with any questions regarding amendments or changes to your study.

The NSU IRB is in compliance with the requirements for the protection of human subjects prescribed in Part 46 of Title 45 of the Code of Federal Regulations (45 CFR 46) revised June 18, 1991.

Cc: Protocol File

3301 College Avenue • Fort Lauderdale, FL 33314-7796 • (954) 262-5369
Fax: (954) 262-3977 • Email: *inga@nsu.nova.edu* • Web site: www.nova.edu/cwis/ogc

Appendix H

IPI Frequency of Use by Aggregate Mean

IPI Frequency of Use by Aggregate Mean

Strategy	*N*	Mean	Std. Deviation
Effectively introduce myself effectively to my students at the beginning of each semester	7	5.0000	.00000
State objectives in syllabus	8	5.0000	.00000
Require students to make weekly contributions	8	4.7500	.70711
Enthusiastic about the subject and students' learning about it	8	4.6250	.74402
Continually provide feedback on student performance	8	4.5000	.75593
Provide sufficient time on tasks for each student	8	4.5000	.53452
Learn of student difficulties relevant to the course and use this information in developing instruction	8	4.3750	.91613
Break information into manageable steps to master recall and skill in the course	8	4.3750	.74402
Provide multiple opportunities for students to apply their learning	7	4.1429	1.21499
Encourage students to question assumptions made by others or by themselves	8	4.0000	1.06904
Provide support related to risk or difficulties faced by each student as the course progresses	8	4.0000	1.41421
Spell out a timeline for completing successive steps toward meeting the objectives	8	4.0000	1.85164
Feedback not only identifies errors, but also includes causes and ways to correct errors	8	3.8750	.99103
Encourage students to think about effectiveness of their thinking	8	3.7500	.88641

Provide opportunities for collaborative learning	8	3.7500	1.83225
Expose students to different applications of the course subject matter	8	3.7500	1.03510
Advise students in need of remedial work of ways to get the needed help	8	3.7500	1.38873
Make students aware of resources for their mastery of recall and skill, including my own expertise	8	3.7500	1.03510
Pose learning tasks in terms of solving problems as well as in terms of accumulating knowledge	7	3.7143	1.49603
Make students aware early in the course of the importance of being a skillful learner	7	3.7143	1.11270
Encourage students to consider alternative interpretations of their own experience and experiences of others	7	3.5714	1.61835
Encourage students to draw from their experiences on the job or in other non-course activities to assist learning	8	3.5000	1.51186
Design each assignment to enhance student skills as learners	7	3.2857	1.49603
Elicit students' analysis of what worked and did not work in their problem-solving experiences	7	3.1429	1.86445
Arrange for students to conduct well-designed research and case analyses	8	3.1250	1.24642
Check student inferences for validity and encourage students and their peers to do so as well	8	3.0000	1.60357
Introduce students to a variety of cultures or subcultures	8	3.0000	1.51186
Encourage students to try more than one approach to solving complex problems	8	3.0000	1.60357
Encourage students to question and monitor the credentials of alleged authorities in the field	8	2.7500	1.38873
Encourage students to incorporate their own goals into the work of the course-Frequency	8	2.6250	1.59799
Make students aware of the characteristics of highly effective learning	7	2.5714	1.51186

If student seeks licensure, certification, or other testament to their meeting professional standards, I relate learning objectives to that goal	7	2.5714	1.98806
Use role playing, simulation, or activities to supplement lecture and discussion in learning	7	2.5714	1.51186
Further clarify course objectives through online discussion	8	2.5000	1.85164
Encourage students to use tools and skills that enhance their learning while also saving their time	7	2.4286	1.27242
Encourage students to evaluate their efforts to become more proficient learners	7	2.4286	1.81265
Adapt challenges to students based on differences in their prior knowledge and skill level	8	2.3750	1.50594
Require repeated practice on each objective of the course	8	2.0000	1.51186
Assess student skill as learners at the beginning of the learning experience	7	1.8571	1.57359
Ask students to restate objectives in their own words	8	1.5000	1.41421
Allocate a proportion of the course grade to student participation in professional conferences	8	1.1250	.35355

N = total number of faculty responses

Appendix I

IPI Ease of use by Aggregate Mean

IPI Ease of use by Aggregate Mean

Strategy	*N*	Mean	Std. Deviation
State objective in syllabus-Ease of use	8	5.0000	.00000
Provide sufficient time on tasks for each student	8	4.7500	.70711
Enthusiastic about the subject and students' learning about it	8	4.7500	.70711
Continually provide feedback on student performance	8	4.7500	.70711
Break information into manageable steps to master recall and skill in the course	8	4.7500	.46291
Spell out a timeline for completing successive steps toward meeting the objectives	7	4.7143	.48795
Effectively introduce myself to students at the beginning of each semester	7	4.7143	.75593
Require students to make weekly contributions	7	4.7143	.75593
Provide opportunities for collaborative learning	6	4.5000	.83666
Advise students in need of remedial work of ways to get the needed help	7	4.4286	.78680
Encourage students to draw from their experiences on the job or in other non-course activities to assist learning	7	4.4286	.97590
Require repeated practice on each objective of the course	5	4.4000	.89443
Encourage students to consider alternative interpretations of their own experience and the experiences of others	6	4.3333	.81650
Learn of student difficulties relevant to the course and use this information in developing instruction	8	4.2500	.88641

Encourage students to question assumptions made by others or by themselves	8	4.2500	1.03510
Feedback not only identifies errors, but also includes causes and ways to correct errors	8	4.2500	.88641
Encourage students to try more than one approach to solving complex problems	6	4.1667	.98319
Encourage students to incorporate their own goals into the work of the course	6	4.1667	.98319
Provide support related to risk or difficulties faced by each student as the course progresses	7	4.1429	.89974
Encourage students to think about effectiveness of their thinking	8	4.1250	.99103
Pose learning tasks in terms of solving problems as well as in terms of accumulating knowledge	6	4.0000	.89443
Make students aware of resources for their mastery of recall and skill, including my own expertise	8	3.8750	.99103
Provide multiple opportunities for students to apply their learning	7	3.8571	1.46385
Elicit student analysis of what worked and did not work in their problem-solving experiences	6	3.8333	1.83485
Use role playing, simulation, or activities to supplement lecture and discussion in learning	5	3.8000	1.64317
Adapt challenges to students based on differences in their prior knowledge and skill level	5	3.8000	1.30384
If student seeks licensure, certification, or other testament to their meeting professional standards, I relate learning objectives to that goal	4	3.7500	1.89297
Expose students to different applications of the course subject matter	8	3.7500	1.03510
Make students aware early in the course of the importance of being a skillful learner	7	3.7143	1.25357
Further clarify course objectives through online discussion	7	3.7143	1.70434
Design each assignment to enhance student skills as learners	6	3.6667	1.21106

Arrange for students to conduct well-designed research and case analyses	8	3.6250	1.40789
Check student inferences for validity and encourage students and their peers to do so as well	7	3.4286	1.39728
Introduce students to a variety of cultures or subcultures	7	3.4286	1.51186
Make students aware of the characteristics of highly effective learning	5	3.4000	1.51658
Ask students to restate objectives in their own words	5	3.4000	2.19089
Encourage students to question and monitor the credentials of alleged authorities in the field	8	3.2500	1.48805
Encourage students to evaluate their efforts to become more proficient learners	6	3.0000	1.67332
Encourage students to use tools and skills that enhance their learning while also saving their time	6	2.8333	1.16905
Assess student skill as learners at the beginning of the learning experience	6	2.5000	1.51658
Allocate a portion of the course grade to student participation in professional conferences	5	2.0000	1.73205

N = total number of faculty responses

Appendix J

IPI Level of Proficiency by Aggregate Mean

IPI Level of Proficiency by Aggregate Mean

Strategy	*N*	Mean	Std. Deviation
Spell out a timeline for completing successive steps toward meeting the objectives	7	4.8571	.37796
State objective in syllabus-Proficiency	8	4.7500	.46291
Enthusiastic about the subject and students' learning about it	8	4.7500	.70711
Effectively introduce myself to students at the beginning of each semester	7	4.7143	.75593
Require students to make weekly contributions	7	4.7143	.75593
Provide sufficient time on tasks for each student	8	4.6250	.51755
Break information into manageable steps to master recall and skill in the course	8	4.5000	.75593
Provide multiple opportunities for students to apply their learning	7	4.4286	.78680
Advise students in need of remedial work of ways to get the needed help	7	4.4286	.78680
Encourage students to draw from their experiences on the job or in other non-course activities to assist learning	7	4.4286	.97590
Continually provide feedback on student performance-Proficiency	8	4.3750	.91613
Pose learning tasks in terms of solving problems as well as in terms of accumulating knowledge	6	4.3333	1.03280
Provide opportunities for collaborative learning	6	4.3333	.81650
Provide support related to risk or difficulties faced by each student as the course progresses	7	4.2857	.95119

Learn of student difficulties relevant to the course and use this information in developing instruction	8	4.2500	.88641
Encourage students to question assumptions made by others or by themselves	8	4.2500	.70711
Require repeated practice on each objective of the course	5	4.2000	1.09545
Encourage students to consider alternative interpretations of their own experience and experiences of others	6	4.1667	.98319
Encourage students to think about effectiveness of their thinking	8	4.1250	.99103
Feedback not only identifies errors, but also includes causes and ways to correct errors	8	4.1250	.99103
Expose students to different applications of the course subject matter	8	4.0000	1.06904
Encourage students to try more than one approach to solving complex problems	6	4.0000	.89443
Adapt challenges to students based on differences in their prior knowledge and skill level	5	4.0000	1.00000
Encourage students to incorporate their own goals into the work of the course	6	4.0000	1.09545
Arrange for students to conduct well-designed research and case analyses	8	3.8750	.99103
Design every assignment to enhance student skills as learners	6	3.8333	1.32916
Elicit student analysis of what worked and did not work in their problem-solving experiences	6	3.8333	1.32916
If student seeks licensure, certification, or other testament to their meeting professional standards, I relate learning objectives to that goal	4	3.7500	1.89297
Make students aware early in the course of the importance of being a skillful learner	7	3.7143	1.25357
Further clarify course objectives through online discussion	7	3.7143	1.70434
Make students aware of resources for their mastery of recall and skill, including my own expertise	8	3.6250	1.30247

Check student inferences for validity and encourage students and their peers to do so as well	7	3.5714	1.39728
Encourage students to question and monitor the credentials of alleged authorities in the field	8	3.5000	1.19523
Introduce students to a variety of cultures or subcultures	7	3.4286	1.51186
Make students aware of the characteristics of highly effective learning	5	3.4000	1.51658
Use role playing, simulation, or activities to supplement lecture and discussion in learning	5	3.4000	1.34164
Ask students to restate objectives in their own words	5	3.4000	2.19089
Encourage students to evaluate their efforts to become more proficient learners	6	3.0000	1.67332
Assess student skill as learners at the beginning of the learning experience	6	2.6667	1.50555
Encourage students to use tools and skills that enhance their learning while also saving their time	6	2.6667	1.21106
Allocate a portion of the course grade to student participation in professional conferences	5	2.4000	1.67332

N = total number of faculty responses

Appendix K

SEOTE Items Based on Aggregate Mean

SEOTE based on aggregate mean

Item	*N*	Mean	Std. Deviation
Course allowed me to take responsibility for my own learning	55	5.4545	.76541
Instructor was respectful of students' ideas and views	55	5.2909	.91637
Questions about WebCT/Blackboard were responded to promptly	55	4.9091	.92841
Course was designed so that technology would minimally interfere with learning	56	4.8929	1.20119
Course was designed to provide an efficient learning environment	56	4.8750	1.02802
Assignments for this course were of appropriate difficulty level	56	4.8571	1.13504
Course was structured to be user-friendly	56	4.8214	1.09722
Felt comfortable interacting with instructor and other students	55	4.8182	1.09021
Course used examples that clearly communicated expectations for completing course assignments	55	4.8182	1.12367
Questions about course assignments were responded to promptly	55	4.8182	1.24857
Instructor communicated effectively	55	4.7818	1.03084
Course used realistic assignments and problem-solving activities that were interesting and motivated me to do my best work	56	4.7500	1.37840
Course structured to discuss assignments with other students	55	4.7091	1.16544

Course used realistic assignments and problem-solving activities related to situations that I am likely to encounter outside of this course or in future jobs situations	56	4.6964	1.29221
Course allowed me to complete assignments across a variety of learning environments	56	4.6964	1.20483
Provided with supportive feedback related to course assignments	55	4.6727	1.34790
Instructor accessible outside the course	55	4.6182	1.23964
Course used a variety of assignments and activities that allowed students to demonstrate understanding of critical course concepts	56	4.6071	1.18596
Flexibility was permitted when completing course assignments	55	4.6000	1.35537
Course was used to stimulate thoughtful discussion	55	4.6000	1.40897
Instructor was enthusiastic about online teaching	55	4.6000	1.16428
Course included interactive assignments and links to examples from the Web that directly involved me in the learning process	56	4.5714	1.29133
Amount of contact with instructor was satisfactory	55	4.5273	1.41231
Course provided good examples and links to other examples published on the Web that helped to explain concepts and skills	56	4.4107	1.31808
Course included activities and assignments that provided opportunities to interact with one another	55	4.2182	1.51157
Was given choices about the types of assignments that I would complete to demonstrate learning of important course concepts	56	3.9643	1.48892

N = total number of student responses

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