



AN ABSTRACT OF THE DISSERTATION OF

Lori H. Wamsley for the degree of Doctor of Philosophy in Education presented on November 19, 2012.

Title: A Comparison of Assessment Methods Used by Community College Faculty in Face-to-Face and Online Courses

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Online learning has grown exponentially within higher education in the past decade, especially at community colleges. As online course offerings expand community colleges need to assess student learning in order to ensure quality learning experiences for students and for accreditation purposes. The purpose of this study was to compare the assessment methods of community college faculty who teach the same course in both face-to-face and online formats, in order to determine the similarities and differences that exist in assessment practices. This study stemmed from the constructionist and pragmatic perspectives of the researcher. Additionally this study asked how community college faculty perceive the effectiveness of different assessment methods on student learning. The method for this research was a qualitative multiple case study in which community college accounting faculty were interviewed to explore how they assess student learning in both the online and face-to-face formats. Homework problems, exams, quizzes were the most commonly used methods of assessment of student learning in both formats by the study participants. Furthermore, exams and quizzes were believed to be most effective in assessing student learning, among the community college faculty members interviewed. Another discovery from this study included the prevalent use of publisher's software,

called *My Accounting Lab*, among community college accounting faculty in administering assessments to students. Additional concerns around assessing online students effectively, managing online student group work, and mitigating online student cheating were also revealed during interviews with study participants.

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A Comparison of Assessment Methods Used by  
Community College Faculty in Face-to-Face and Online Courses

by  
Lori H. Wamsley

A DISSERTATION

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Dean of the Graduate School

I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

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Lori H. Wamsley, Author

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## DEDICATION

This is for you, Mom.

Thank you for giving me a lifelong love of learning.

## **Chapter 1: Introduction**

Distance education has grown exponentially since the development of the Internet, and college students continue to demand distance education opportunities at an accelerated rate (Allen & Seaman, 2011; Instructional Technology Council, 2012). Online learning, a type of distance education, has also expanded quickly within higher education (Allen & Seaman, 2011; Tallent-Runnels et al., 2006; U.S. Department of Education, 2009). Indeed, in more recent years, online learning has taken on new monikers, such as e-learning and e-campus, as institutions of higher education find ways to provide online programs to students, especially to younger students (or millennials) who have a strong technological knowledge base (Instructional Technology Council, 2010).

Distance education and subsequent student enrollment in online courses at community colleges have also increased considerably in the last 15 years. Based on a National Center for Education Statistics survey conducted in 2006-2007, 96% of public two-year institutions offered online courses (Parsad & Lewis, 2008). More recently, between Fall 2010 and Fall 2011, colleges reported a 8.2% increase in distance education enrollments. Thus, distance education, especially Internet-based distance education (or online learning), has grown in popularity on community college campuses, as community college students continue to demand more distance education courses (Instructional Technology Council, 2012). As a result, literature documenting how to design quality online courses using effective instructional strategies and



practices has emerged (Conceição, 2007; The Institute for Higher Education Policy, 2000; Mitchell, 2010; Revere & Kovach, 2011).

However, literature discussing the assessment of student learning in online courses is not as prevalent (Angus & Watson, 2009; Arend, 2007; Gikandi, Morrow, & Davis, 2011; Kirtman, 2009; Perez-Greene, 2005). Historically, assessment of student learning in face-to-face courses was done through standardized instruments (Banta, Black, Kahn, & Jackson, 2004). More recently, faculty have recognized the need to assess student learning in order to make effective adjustments in teaching practices and to increase the quality of student learning (American Association for Higher Education, 1996; Banta et al., 2004; Frye, 1999; Gikandi, Morrow, & Davis, 2011; U.S. Department of Education, 2010). Meanwhile, assessment of student learning outcomes at the course, program, and institutional levels has now become an essential part of the learner-centered institution (Lopez, 2004; National Institute for Learning Outcomes Assessment, 2009; U.S. Department of Education, 2010).

### **Research Focus and Purpose**

While a great deal of literature has been written about online instruction and teaching, as well as the student characteristics needed to successfully complete an online course, literature focusing on assessment of student learning in online courses is limited (Arend, 2007; Gikandi, Morrow, & Davis, 2011; Johnson, 2008; Kirtman, 2009; Lucas, 2001). Much of the assessment literature and research that has been written and conducted with regard to student learning outcomes concentrates on face-to-face courses (Angelo & Cross, 1993; Herson, 2004; Maki, 2004; Rust, 2002;

Serban 2004; Suskie, 2009). However, as “online instruction continues to mature, distance education administrators see the continuing need to address course quality and design, faculty training and preparation, the need for course assessment, and improving student readiness and retention” (Instructional Technology Council, 2010, p. 13). Assessment of student learning is necessary for the improvement of teaching and learning (Beebe, Vonderwell, & Boboc, 2009; Gikandi, Morrow, & Davis, 2011; Kirkwood & Price, 2008; Serban, 2004; Swan, Shen, & Hiltz, 2006; Vonderwell, Liang, & Alderman, 2007), yet assessment of student learning in the online environment can be difficult to analyze with regard to the quality, developmental, critical, and reflective aspects of learning (Milam, Voorhees, & Bedard-Voorhees 2004).

Thus, the purpose of this research study was to explore how community college faculty, who teach the same courses in both face-to-face and online formats, assess student learning; that is, questions focus on what kinds of assessment practices they utilize in each format. This knowledge can provide understanding as to how assessment of student learning in online environments is similar and how it is different from the face-to-face environment. Additionally, this study asked how community college faculty perceive the effectiveness of the assessment methods used to assess student learning in both online and face-to-face courses. This study was qualitative, which allowed the construction of meaning to emerge from the findings, rather than pointing to specific cause and effect actions.

## Research Questions

Determining a research question is essential to the research process as it focuses the researcher's purpose by determining what will be answered through the course of the study (Creswell, 2008). In many ways, the statement of research question(s) gets at the heart of the research inquiry and drives the research process and rationale. For this research study, the following questions were explored:

- 1) How do community college faculty members, who teach the same course in both face-to-face and online formats, assess student learning, and what similarities and differences emerge?
- 2) What methods do these community college faculty members perceive to be most effective in assessing student learning in online courses compared to face-to-face courses and why?

The first research question was meant to discover which assessment methods community college faculty use most frequently to measure student learning in face-to-face and online course environments. While frequency does not necessarily equate to quality, determining which methods are used most often can provide insight as to how faculty prefer to assess student learning in both environments. Additionally, the researcher looked for any similarities and differences in the assessment methods utilized by the same community college faculty when teaching the same course in face-to-face and online formats. Any differences that are found could be used to establish better instructional methods in the online learning environment in the future. By determining that certain assessment methods are more prevalent in an online

learning environment, practitioners can utilize that knowledge to create faculty development that builds on those assessment tools, or, recognize methods that are used due to ease of implementation in the online environment. Furthermore, faculty and administrators can work to integrate measurable rubrics that complement and support the most frequently used assessment methods.

The second research question attempted to identify which assessment methods community college faculty believe to be most effective in measuring student learning in face-to-face and online course formats. With these data, the researcher compared the assessment methods deemed most effective in each course format with those assessment methods utilized most frequently in each course format for consistency. The researcher hoped to develop this information in future studies to create best practices for assessing student learning in online courses offered at community colleges. Additionally, this information may highlight inconsistencies in assessment methods that are viewed as most effective for measuring student learning versus assessment methods used most frequently due to ease of administration or grading by faculty.

### **Rationale and Significance**

Community colleges continue to expand course offerings within the online environment as a way to meet student demands and increase access to higher education. Thus, an essential argument for the significance of this research topic is to improve the quality of teaching and learning that occurs at the course, program, and institutional levels within a community college. One of the goals stated in the 2010

U.S. Department of Education's report, titled *Transforming American Education: Learning Powered by Technology*, is developing teachers who are skilled at online instruction, including being able to adequately assess student learning within the online environment. As indicated earlier, 96% of community colleges provide distance education, and demand for online learning is increasing among students. As community colleges continue to provide instruction through online learning environments, it is imperative that institutions continuously assess the quality of student learning that occurs within that unique environment. As stated by Milam et al. (2004),

community colleges are doing many things well with online education...it is critical that they not become complacent with acceptable rates of student satisfaction with online courses, but continue to assess the dynamic, changing, and challenging nature of this relatively new paradigm of higher education. (p. 83)

Additionally, faculty development opportunities within community colleges rarely provide specific instruction on assessment of student learning in online courses; instead much faculty development for online instruction focuses on converting face-to-face content and curriculum into online instructional components (Yang & Cornelious, 2005). The results from this research study could be used to provide better faculty development opportunities that engage faculty in the distinct assessment of student learning outcomes in online courses. More specifically, discovering any differences in the assessment of student learning in online courses compared to face-to-face courses may provide a way to develop standards and benchmarks for assessment of student learning in online courses. Such standards and benchmarks

could subsequently be implemented institution-wide, which would eventually allow for student achievement and performance data to be developed (Lopez, 2004) around student learning in online courses. Such statistics could be used for year-over-year comparative purposes to determine institutional effectiveness, as well as justification for requests to local, state, and federal agencies for increased funding to expand or improve distance education programs.

Another important reason for measuring and maintaining quality of student learning is accreditation. Many community colleges are overseen by accrediting bodies that evaluate educational quality. Thus, it is necessary to ensure the quality of learning that occurs within the online learning environment by reviewing assessment practices and their effectiveness. For example, the Northwest Commission on Colleges and Universities (NWCCU, 2010), the accrediting body for many of the community colleges located in the Pacific Northwest, evaluates institutions based on five standards, including Standard 2 – Resources and Capacity, which emphasizes the need for assessment of learning outcomes:

2.C.10 The institution demonstrates that the general education components of its baccalaureate degree programs (if offered) and transfer associate degree programs (if offered) have identifiable and assessable learning outcomes that are stated in relation to the institution's mission and learning outcomes for those programs. (p. 7)

Furthermore, as noted by Ron Baker of NWCCU, “shifts in societal attitudes and expectations are forcing higher education to move toward specific meaningful assessment and reporting of the quality of its infrastructures, processes and outcomes” (Hernon, 2004, p. 305). These arguments provide the practical rationale and

demonstrate the need for the study of assessment student learning in online courses. Thus, this researcher's questions about assessment practices used by community college faculty to measure student learning in online courses and how these may differ from face-to-face courses could aid in providing specific, meaningful data about assessment processes in the online environment. Such data could alter faculty development practices, curricular design, and student learning support services, which studies show are a key purpose for conducting assessment (Dietz-Uhler, Fisher, & Han, 2007; Johnson, 2008; Kirkwood & Price, 2008; Rust, 2002).

From a scholarly significance perspective, distance education and assessment of distance education programs have been documented in educational literature, yet very little has been written about assessment of student learning in online courses (Arend, 2007; Gikandi, Morrow, & Davis, 2011; Johnson, 2008; Kirtman, 2009; Lucas, 2001), particularly within the community college environment. Comparisons of assessment methods of community college faculty teaching both online and face-to-face courses are limited. Thus, this research study contributes to the current body of scholarly literature.

Lastly, the researcher is an online instructor and has a keen interest in developing a deeper understanding of assessment of student learning in the online environment. By exploring how faculty in a variety of disciplines assess student learning in the online environment, the researcher hoped to gain insight with regard to emerging methods of effective assessment for personal improvement as well as to enhance the quality of student learning within the courses she teaches.

## **Chapter Summary**

Online learning within community colleges has grown exponentially in the past decade, and continued growth is expected. Assessment of student learning has also gained prominence within community colleges. The purpose of this research study was to examine how community college faculty assess student learning in both face-to-face and online courses and determine what differences exist between them, if any. Additionally this study queried faculty to discover what assessment methods utilized in online learning they perceive to be most effective in the assessment of student learning. The practical and scholarly rationale for conducting this study included:

- 1) enhancing the quality of online instruction,
- 2) providing descriptive data for improving faculty development, curricular design, and student learning support services,
- 3) measuring assessment of student learning in online courses for accreditation purposes, and
- 4) contributing to the existing scholarly literature.

Lastly, from a personal perspective, the researcher wished to expand her knowledge of this topic for the improvement and enhancement of her own online instructional assessment strategies.



## **Chapter 2: Literature Review**

Assessment has had a long tradition within education, while online learning has been a more recent development. Yet, both play important roles in today's educational institutions, particularly community colleges. As part of any research process, a review of literature is necessary to establish definitions of key terms and to place the focus of the study within scholarly and practical context (Creswell, 2008). Within this section, the process for organizing and conducting the literature review will be discussed. Additionally, key concepts, terms, and phenomena surrounding assessment and online learning are identified and placed within historical context. Lastly, online learning within the community college environment will be discussed.

### **Approach to Literature Review**

Several library databases as well as the Web were searched to cull information about assessment and online learning. Google and Google Scholar were used when conducting Web searches, and the researcher also reviewed websites such as the American Association of Community Colleges (AACC), Education Resource Information Center (ERIC), U.S. Department of Education ([www.ed.gov](http://www.ed.gov)), and the National Center for Education Statistics (NCES). Library databases searched by the researcher included: Academic Search Premier, Dissertation Abstracts, Education Research Complete, Education Reference Complete, ERIC (EbscoHost), Library, Information and Technology Abstracts (LISTA), MasterFile Premier, Professional Development Collection, Psychology and Behavioral Sciences Collection, PsycInfo, and PsycArticles. The noted library databases were searched using the following

keywords and phrases: accreditation, assessment, community college faculty, community colleges, course assessment, distance education, distance learners, distance learning, educational outcomes, educational objectives, e-learners, e-learning, evaluation, faculty, higher education, instruction, instructional effectiveness, Internet-based instruction, learning objectives, learning outcomes, online courses, online education, online learning, outcomes of education, student assessment, student learning, student learning outcomes, and web-based instruction.

**Major authors.** At the conclusion of the initial review of literature found through keyword searching within library databases and on the Web, the researcher began to recognize certain authors who have written repeatedly about assessment or online learning. These authors were also frequently cited by others. Thus, as part of subsequent literature searches, the researcher also began searching for specific authors, including Thomas Angelo, Trudy Banta, Marilee Bresciani, Patricia Comeaux, K. Patricia Cross, Peggy Maki, Rena M. Palloff, Keith Pratt, Ruth Stiehl, and Linda Suskie. This additional searching by specific authors added substantively to the researcher's knowledge base about assessment and online learning.

**Inclusion and exclusion criteria.** Throughout the search process, the researcher evaluated material to ensure relevancy to, and focus on, the research topic, which was essential in any literature review (Creswell, 2008; Glatthorn & Joyner, 2005). As the purpose of this research study is to focus on the assessment of student learning in online courses by faculty at the community college level, studies about online learning in the K-12 environment were deemed extraneous to the research

topic. Additionally, materials that focused on the attributes of successful online learners, as well as student perceptions and expectations of online learning environments, were also excluded, as this study intends to focus on faculty use of, and perceptions about, assessment practices. Lastly, most of the distance education literature prior to 1995 did not refer to online learning (or web-based learning) but rather to older formats of distance education, such as correspondence courses or instructional television. Thus, distance education materials older than 1995 were eliminated from the search process.

**Organization.** This literature review begins with an historical background to assessment, presenting some definitions and linking assessment to student learning. It then turns to describing online learning and its emergence within community colleges. Specifically, the following themes from the literature are included: (a) the need for faculty to consider assessment of student learning in online courses as part of the instructional design process, (b) face-to-face and online course comparison, and (c) faculty assessment methods of student learning. As part of a literature review, it is necessary to evaluate studies that relate to future research (Creswell, 2008) and critique the studies to demonstrate the need for new perspectives and further study around the research topic. Thus, each theme includes: (a) an evaluation of the studies reviewed and (b) an analysis of how they relate to future research.

**Summary.** In summary, library databases and the Web were searched using keywords related to assessment, online learning, and community colleges. Additionally, specific authors who frequently wrote about these same topics were also

used as terms. Care was taken by the researcher to focus the search on online learning and assessment within the higher education environment, specifically, community colleges.

### **Historical Roots of Assessment**

Assessment has been part of higher education since its inception. In early models of higher education, students would demonstrate their learning through memorization and oral recitation (Cohen & Kisker, 2010). As time progressed, written forms of assessment became the more prevalent methods for the evaluation of student learning, but assessment remained focused at the student and course level of learning. In the 1970s, external stakeholders of community colleges, including legislative bodies, began demanding and mandating assessment of institutions to measure effectiveness in order to justify the appropriation of funding to community colleges from public coffers (Cohen & Brawer, 2008). These mandates began a movement of assessment focusing at the institutional level, and institutional research offices began to emerge (Cohen & Brawer, 2008). By the late 1980s and early 1990s, a variety of educational bodies, including the U.S. Department of Education and the Higher Learning Commission of the North Central Association of Colleges and Schools (NCA), began issuing statements indicating what constituted assessment of student learning in higher education (Cohen & Brawer, 2008; Lopez, 2004). Additionally, accrediting bodies began to scrutinize the assessment practices occurring in higher education. In 1996, the American Association for Higher Education, published its "9 Principles of Good Practice for Assessing Student Learning:"

1. The assessment of student learning begins with educational values.
2. Assessment is most effective when it reflects an understanding of learning as multidimensional, integrated and revealed in performance over time.
3. Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes.
4. Assessment requires attention to outcomes but also and equally to the experiences that lead to those outcomes.
5. Assessment works best when it is ongoing and not episodic.
6. Assessment fosters wider improvement when representatives from across the educational community are involved.
7. Assessment makes a difference when it begins with issues of use and illuminates questions that people really care about.
8. Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change.
9. Through assessment, educators meet responsibilities to students and to the public. (pp. 1-3)

Though published over 15 years ago, these principles are still relevant to today's community colleges and their efforts to implement assessment practices. Of particular importance, as related to this research study, was the fact that these nine principles are applicable to both face-to-face and online learning environments.

**Assessment defined.** As seen throughout its history, assessment can take on many meanings and purposes for those involved in it. For students and teachers, assessment is frequently equated to the grading that occurs within each individual course taken and taught. For administrators, assessment is often about demonstrating effectiveness to accrediting bodies through indicators such as graduation rates. For external advisory boards and employers, assessment is biased toward evaluating what

students can do upon graduation. These multiple ideas surrounding the definition of assessment and what assessment should entail make assessment in higher education a difficult concept to define.

In a review of assessment literature, two common definitions cited in assessment literature include those developed by T. Dary Erwin in 1991 and Thomas A. Angelo in 1995. Erwin's (1991) definition of assessment in his book *Assessing Student Learning and Development*, stated:

Assessment is defined as the systematic basis for making inferences about the learning and development of students. More specifically, assessment is the process of defining, selecting, designing, collecting, analyzing, interpreting, and using information to increase students' learning and development. (p. 14)

A few years later, Angelo (1995) defined assessment in an *AAHE Bulletin* as:

Assessment is an ongoing process aimed at understanding and improving student learning. It involves making our expectations explicit and public; setting appropriate criteria and high standards for learning quality; systematically gathering, analyzing, and interpreting evidence to determine how well performance matches those expectations and standards; and using the resulting information to document, explain, and improve performance. When it is embedded effectively within larger institutional systems, assessment can help us focus our collective attention, examine our assumptions, and create a shared academic culture dedicated to assuring and improving the quality of higher education. (p. 7)

Both definitions indicated that assessment is a process that involves continuous review surrounding student learning, and Angelo's definition expanded Erwin's definition to include the broader focus of institutional assessment.

**Improvement and accountability.** An important phenomenon that has emerged within assessment literature is the recognition that there are two primary reasons for assessing student learning: (a) accountability, and (b) improvement (Banta,

2010; Banta & Blaich, 2011; Bresciani, 2008; Buzetto-More & Alade, 2006; Frye, 1999; National Institute for Learning Outcomes Assessment, 2009; Stiehl & Lewchuk, 2008a; Stiehl & Lewchuk, 2008b).

Assessment for accountability was defined by Frye (1999) as "essentially a regulatory process designed to assure institutional conformity to specified norms" (p. 1). Thus, assessment for accountability is a process in which others (e.g. accrediting bodies, state legislatures, and other external stakeholders) measure performance in order to determine effectiveness. Assessment for accountability is the primary reason why community colleges continue to have Institutional Effectiveness offices that track various statistics such as student completion and graduation rates, which are reported to governmental entities and taxpayers, who provide funding. Also, assessment for accountability is a component of many higher education accreditation bodies' standards. Lastly, assessment for accountability can be useful for demonstrating to external stakeholders, such as employers, the quality of abilities and skills of students who have completed degree and certificate programs (Banta & Blaich, 2011; Frye, 1999).

Assessment for improvement was defined by Frye (1999) as "an information feedback process to guide individual students, faculty members, programs and schools in improving their effectiveness" (p. 1). Therefore, assessment for improvement is a process in which we measure our own effectiveness for the express purpose of developing and perfecting what we do. Assessment for improvement, then, is part of the feedback faculty give to students with regard to their coursework and allows

students to grow and develop their knowledge, skills, and abilities throughout a course. Assessment for improvement is also present in student and peer evaluations of faculty; that is, the reactions students and fellow faculty members provide to a faculty member with regard to their teaching abilities and skills represent a form of assessment for faculty improvement. These comments give faculty insight as to their effectiveness and how they can improve upon it. Additionally, this information can guide faculty in developing a more cohesive curriculum as well as faculty training opportunities (Banta & Blaich, 2011; Frye, 1999).

Chickering and Gamson's (1987) *Seven Principles for Good Practice in Higher Education* also supported the assertion that assessment practices affect student learning, as active learning techniques, prompt feedback, sufficient time, and high expectations were noted as ways to support student learning. The ability of faculty to acknowledge and utilize these principles within their courses is part of developing effective assessment tools.

This research study looked primarily at assessment as a tool for improvement by exploring the assessment practices used by community college faculty to assess student learning. Yet, it was also necessary to recognize the role assessment plays as an accountability tool, because it may affect the perceptions community college faculty have when considering the effectiveness of their assessment practices.

**Assessment and student learning.** The recognition that assessment and student learning are interconnected is another essential phenomenon of assessment that provides a framework for this research study. Assessment, from the faculty



perspective, is the process of measuring student learning that occurs over a course of time. Faculty may measure student learning against specific institutional or program outcomes or course objectives. Assessment can be formative or summative. Through the use of assessment practices, faculty signal to students their expectations of student learning outcomes (Kirkwood & Price, 2008). Thus, assessment strategies direct and prompt student learning (Sigala, 2005). The relationship between assessment and student learning has been noted consistently by other researchers (Belfer & Wakkary, 2005; Johnson, 2008; Keeling, Wall, Underhile, & Dungy, 2008; Salcedo, 2010).

***Formative assessment.*** Formative assessment is the measuring of student learning during and throughout the learning process and is meant to aid the learner in improving performance and knowledge gained (Maki, 2004; Suskie, 2009). Often this measure is shown in faculty feedback to students based on students' performance on assignments or tests completed during the learning period (Tilghman, 2011). Another way of thinking about formative assessment is assessment for learning (Elwood & Klenowski, 2002; Klisc, McGill, & Hobbs, 2009; Vonderwell, Liang, & Alderman, 2007).

***Summative assessment.*** Summative assessment is the measuring of student learning upon completion of the learning process; it is meant to be a final measure of the knowledge the student has acquired and an indication of the success (or failure) of the student in gaining stated learning outcomes (Maki, 2004; Suskie, 2009; Tilghman, 2011). Often this measure is shown in a student's final grade or at the conclusion of a course of study, such as a capstone course or project, in which a student demonstrates

his or her ability in meeting program or institutional outcomes. Summative assessment can be thought of as assessment of learning (Elwood & Klenowski, 2002; Klisc et al., 2009; Vonderwell et al., 2007).

*Surface versus deep learning.* Rust (2002) suggested students will take a surface or deep learning approach toward assessment tasks, based on whether they view such tasks as being relevant and important to what they are learning. Swan, Shen, and Hiltz (2006) further supported this claim by asserting that students will value the learning activities that have assessment measures attached to them. Thus, students within an online course are more likely to focus on learning activities with significant assessment attached to them (i.e. assignments worth higher percentages towards grades) and those they deem relevant to what they need to learn. Rust (2002) also indicated that for effective student learning, assessments should be explicit and transparent to students and instructors need to provide prompt and frequent feedback to students.

Finally, Johnson (2008) and Fletcher, Meyer, Anderson, Johnston, and Rees (2012), emphasized how faculty can use formative assessment methods to increase student learning. By using formative assessment practices within a course, faculty members provide essential feedback to students that allow them to improve throughout the course. As students receive feedback from faculty on their performance, students begin to recognize what is required in order to demonstrate their learning. This understanding can assist students in moving from a surface approach to learning to a deep approach to learning (Kirkwood & Price, 2008).

**Summary.** Assessment is an essential part of the learning process and has been since the beginning of formal education. As education has evolved, so has the definition of assessment and its purpose. Currently, assessment is recognized as an ongoing process that is conducted for improvement and accountability purposes at the course, program, and institutional levels. However, even with the evolving definitions and purposes of assessment, it has always been closely linked to student learning. Faculty use formative and summative assessment practices in order to measure and reflect the depth of student learning. Future research should focus specifically on assessment as an improvement tool by considering how community college faculty use assessment practices to measure student learning. Additionally, future research should consider community college faculty perceptions of the effectiveness of their assessment practices in measuring student learning.

### **Development of Online Learning**

As an increasing percentage of courses are now being delivered online, it is useful to briefly explore the origins of online learning and its emergence within community colleges.

**Distance education.** Distance education, which has existed since the 18th century, is an alternative format to traditional, face-to-face classroom learning. In distance education, students may experience the learning process in a variety of formats such as correspondence learning, instructional television, online learning, or other multimedia formats (Bower & Hardy, 2004). As technology has evolved, so has distance education. New and updated interactive online technologies continue to

influence and help distance education grow by allowing new delivery methods and access to instruction. The primary distinction of distance education from face-to-face education is the actual physical distance between the instructor and learner.

**Online learning.** Online learning (or web-based or Internet-based) learning is a type of distance education in which learners spend the majority of their formal learning time interacting with the instructor and other learners online, rather than in a face-to-face setting. The definition of an online course varies; some colleges define online courses as those in which 100% of instruction is provided online, while others define an online course as courses as those in which 50 - 80% of instruction is provided online (Allen & Seaman, 2010; Cejda, 2010). Thus, there are different meanings and configurations that constitute online learning in higher education.

***Online versus face-to-face learning.*** Yet, while definitions of online learning may differ, there have been numerous studies conducted that indicate there is no significant difference when comparing effectiveness in instructional quality or student learning in face-to-face and online courses (Cavanaugh, 2001; Larson & Sung, 2009; Russell, 2001; Sussman & Dutter, 2010; Topper, 2007; U.S. Department of Education, 2009). Indeed, Russell (2001) maintains a website called No Significant Difference ([www.nosignificantdifference.org](http://www.nosignificantdifference.org)) that collates various studies on the quality of distance education. Moreover, the U.S. Department of Education (2009) reviewed more than 1,000 empirical studies comparing online and face-to-face learning in their report titled *Evaluation of Evidence-Based Practices in Online Learning* and found

that no significant difference exist in student learning when comparing online and face-to-face courses.

However, while studies have found no significant difference in online and face-to-face learning with regard to student learning and outcomes, a key component of online learning is that it does differ from face-to-face learning, particularly with regard to course content design, development, and delivery (Conceição, 2007). Hathaway and Norton (2012) found that course design in the online environment can influence online teaching, thus online instructors should have access to online course design workshops. Other aspects of online course development and delivery include considering how to chunk online content differently than the hour-long lecture format and providing online orientations for online students (Richards, Dooley, & Lindner, 2004).

*Online learning and the community college.* Online learning began its ascent in higher education in the mid to late 1990s with the widespread introduction of the Internet. Community colleges, in particular, have seen a great increase in online learning over the past decade (Cejda, 2010; Instructional Technology Council, 2012). In many ways, the quick implementation and expansion of online courses within the community college setting makes sense; as central to the mission of the community college is providing access to education and workforce training (Bower & Hardy, 2004; Cohen & Brawer, 2008). Online learning allows community colleges to fulfill this aspect of their mission, because colleges can increase the number of courses offered to students, without needing to expand physical space and capacity and by

offering courses that do not present specific day and time constraints to students. Additionally, as students must become more technologically adept in order to be competitive in today's job market, online learning allows students to learn subject content while also developing technology skills.

While there are many advantages for community colleges to provide online learning opportunities for their students, there are also challenges they must face. Two of these challenges include: (a) the need for faculty training to gain greater technological skills and knowledge, and (b) a change in teaching pedagogies when designing instruction for online formats (Bower & Hardy, 2004; Cejda, 2010). Tied to both of these challenges is assessment of student learning. Faculty must be adequately trained and knowledgeable in online learning technologies and online teaching pedagogies in order to design and develop valid assessment strategies of student learning (Friedlander & Serban, 2004; Palloff & Pratt, 2009; Revere & Kovach, 2011).

As online courses have increased in community colleges, it makes sense to evaluate the assessment practices of faculty and their perceptions of the effectiveness of those practices. This research study sought to explore what assessment practices community college faculty, who teach the same course in face-to-face and online formats, use in measuring student learning. The goal of the study was to provide insight into how faculty training for designing and teaching in the online environment can be improved.

**Summary.** Online learning, a type of distance education, has existed for over a decade. Online learning can vary in definition from institution to institution, with

regard to the amount of time a student spends learning online. However, the primary distinction in online learning versus face-to-face learning is a physical separation between the instructor and the student. Online learning has grown increasingly in community colleges, particularly as community colleges strive to address issues surrounding providing access to convenient, affordable classes, as well as offering opportunities for students to increase their technological skills for today's workplace. Consequently, as the increase for online courses has risen in the community college environment, so has the need for faculty training in developing appropriate teaching pedagogies in the online environment. Thus, future studies may focus on comparing assessment practices used by community college faculty in online and face-to-face courses, in order to explore if there are ways to improve teaching practices.

### **Assessment and Online Learning**

Assessment is an essential component of learning and many studies surrounding assessment in the traditional face-to-face classroom format have been conducted and continue to be studied. While much of this research can offer useful foundational knowledge to faculty with regard to the importance of assessment, online learning is a different delivery mode for providing instruction to learners (Conceição, 2007; Tilghman, 2011). As such, online learning presents a new paradigm for how faculty teach and for how students learn, which suggest the need for faculty to think about assessment in the online learning environment in different ways (Fletcher et al., 2012; Mandinach, 2005; Perez-Greene, 2005; Siedlaczek, 2004). Additionally, faculty must also consider how their instructional practices affect assessment of student

learning in the online environment and how they may want to alter their practices in order to effectively assess student learning in online courses (Toth, Amrein-Beardsley, & Foulger, 2010).

The purpose of this literature review was to highlight emerging key themes related to assessment and online learning, evaluate other studies conducted as they relate to these topics, and suggest needed future research. Thus, this discussion will explore emerging themes within the literature that offer a framework for future research and analyze previous studies conducted with regard to their relevance to such research.

**Designing assessment for online courses.** One of the main themes that emerged from the literature review was the need for faculty to rethink assessment strategies within online courses and to integrate assessment into the instructional design process (Beebe, Vonderwell, & Boboc, 2009; Gaytan & McEwen, 2007; Lucas, 2001; Kirtman, 2009; MacDonald, 2004; McCracken, Cho, Sharif, Wilson, & Miller, 2012). Assessment has a direct effect on student learning (Kirkwood & Price, 2008), thus it is essential that faculty consider assessment as part of their instructional design process in order to guide student learning toward expected learning outcomes within a course (Sigala, 2005). Additionally, multiple methods of assessment need to be utilized in instruction in order to: (a) facilitate more authentic assessment of student learning, and (b) allow students to demonstrate their learning in a variety of contexts (Maki, 2004). Thus, how instructors design their assessment tools within an online



course will affect student learning and performance (Johnson, 2008; Liang & Creasy, 2004; Lucas, 2001; McCracken et al., 2012; Yang & Cornelious, 2005).

Looking at specific studies related to proposed future research, one approach would compare online with face-to-face courses. For example, Beebe, Vonderwell, and Boboc (2009) conducted a phenomenological study on online versus face-to-face learning utilizing the constant comparative method. As a result of their study, five themes emerged with regard to the factors that should be taken into account when transferring a course from a face-to-face to online environment and designing effective assessment for online. These themes included: (a) time management, (b) student responsibility and initiative, (c) structure of the online medium, (d) complexity of content, and (e) informal assessment. Additionally, the researchers found that "understanding how instructors develop and adapt/adopt assessment practices within the online learning environment can inform subsequent development of formative and summative assessment strategies and tools" (p. 5). One example of this finding, as discussed in the study, was how instructors used online discussion as an assessment of student learning. Most instructors used discussion as a quantitative measure of student participation, which promoted a summative assessment, rather than a qualitative measure of their understanding of the content, which provoked deeper reflection on content and an emphasis on formative assessment.

In their study, Beebe et al. (2009) interviewed two faculty members from a two-year community college and five faculty members from a four-year university, with both institutions located in a large Midwestern city. While this study provided

valuable insight by the surveyed faculty into the considerations that must be undertaken when designing assessment for online courses, the small number of participants within the study limited the ability to generalize the findings on a broader scale. Furthermore, the extremely small sample of two community college faculty interviewed did not provide an adequate perspective from that constituent group.

In another study completed by Santilli and Beck (2005), a mixed method survey was sent to 63 doctoral faculty teaching online courses at Nova Southeastern University and a total of 47 faculty responded. Their study attempted to answer a variety of questions, including what training faculty received with regard to online course design and how faculty perceive effectiveness of student learning in online environments. Results indicated that 53% received training in WebCT, an online course management tool, and 25% received training in online course design. The analysis of qualitative questions indicated that faculty found the discussion activities and interactions to be key to building learning communities. This study highlighted the need for adequate faculty training with regard to online course design and the importance of different types of assessment tools (such as online discussions) in developing a learning community. However, the researchers' focus on doctoral faculty at a single university did not provide direct insight or application for community college faculty and their experiences designing the same course in both the face-to-face and online formats or with developing effective assessment strategies for online courses.

Liang and Creasy (2004) conducted a qualitative study, which investigated the assessment tools developed by 10 faculty members teaching online courses within the College of Education at a Midwestern university. The researchers found the instructors created assessment methods to assist students in demonstrating critical thinking skills and abilities to solve real world problems. Additionally, the researchers found the instructors utilized writing projects, presentations, discussions, and group work as part of designed student learning assessments. As with Santilli and Beck's (2005) study, Liang and Creasy's study supported the importance of designing effective assessments specifically for online learning environments. However, Liang and Creasy's study also had its limitations, which included a small number of participants from a single four-year institution. Thus, their study did not explore the experiences of community college faculty nor did it compare the experiences of those faculty members teaching the same course in both a face-to-face and an online format.

Finally, San Millan Maurino, Federman, and Greenwald (2007) and Vonderwell, Liang, and Alderman (2007) completed similar case studies looking at how the design of discussion tools affected student learning in online courses. While San Millan Maurino et al.'s study focused on 30 online instructors from Farmingdale State in New York, Vonderwell et al.'s study focused on 75 students enrolled in master's education courses at a Midwestern university. Both studies found similar results indicating online discussions, when designed and structured effectively, can develop a strong learning community and support multidimensional learning. While both studies provided strong evidence for careful thought with regard to the design of

assessment of student learning through the discussion tools utilized in many online courses, there were some limitations to both studies. As both studies were case studies, the ability to statistically generalize the findings to a larger population was not possible. Furthermore, neither study considered the design needs or experience of community college faculty.

**Summary.** Much of the literature and research reviewed indicated the need for faculty to consider how assessment should be designed in online courses in order to effectively evaluate student learning. Recognition of this idea was noted repeatedly in the studies reviewed. Santilli and Beck's (2005) study also highlighted the importance of faculty training. However, in each of the studies, limitations existed that indicate that further study, particularly of community college faculty, is needed. These limitations included small participant numbers within each study and studies that focused primarily on assessment in graduate courses or undergraduate courses at four-year institutions. Furthermore, these studies did not compare assessment practices of online and face-to-face courses. Future studies should examine community college faculty's perceived effectiveness of different assessment methods on student learning in online courses. Such studies may lead to improvements in the practices used by faculty for assessment of student learning in online courses at community colleges.

**Face-to-face and online course comparison.** A second theme that emerged within the literature involved studies that compared student learning in the same courses in both face-to-face and online course formats. Kirtman (2009) investigated

education courses, and Reuter (2009) examined a soil science course. Both researchers conducted quantitative studies that compared the assignments and final grades of the online students to those of face-to-face students in order to determine differences in student learning.

Looking at these two studies in greater depth, the Kirtman (2009) study compared graduate level online and face-to-face courses in educational research, in which 71 students were enrolled in the online sections of the course and 69 students were enrolled in the face-to-face sections of the course. Quantitative analyses were conducted using exam grades, paper grades, and student course satisfaction surveys. Results were mixed. No significant difference was found between the online and face-to-face groups with regard to paper grades, yet significant differences were found between the two groups on the mid-term exam, as the face-to-face students scored higher than the online students. However for the final exam, no significant differences were found between the scores of the face-to-face and online students.

The conduct of the Reuter (2009) study was very similar to the Kirtman (2009) study, in that it, too, compared two courses, taught by a single instructor, in both face-to-face and online formats in order to determine if differences in student learning existed. Reuter's results indicated no significant difference in final course grades between the two classes. Reuter suggested that online students may have a greater inherent ability to increase their learning levels, because the online students scored higher on mid-term exams.

These studies provided useful quantitative data of assessment methods in online and face-to-face courses by comparing final grades. The application of the results is limited, however. Specifically, the Kirtman study compared a single course within a graduate program, and the Reuter study compared a single undergraduate soils course. Generalizability of these findings may or may not be possible to community college faculty and students. Also, in the studies, one instructor taught the courses analyzed, so the grading assessments could be biased, based on that faculty member's familiarity with students' abilities in previous courses. Finally, none of the studies considered the faculty's perceived effectiveness of the assessment practices used for measuring student learning.

Future studies should consider the perspectives of several faculty members, so that a singular instructor's bias is less likely to skew results. In addition, there is a need to examine the experiences of community college faculty, since these may be different from faculty at four-year and graduate institutions. Additionally, a qualitative study could seek to explore the assessment practices of community college faculty in a way that provides descriptive insight into their practices beyond the statistical descriptions that quantitative studies measure.

**Summary.** These research studies have provided useful information regarding the effectiveness of online courses. The Kirtman (2009) and Reuter (2009) studies, though quantitative, were limited, because they only focused on a specific course or discipline, thus making it difficult to generalize and apply the results of the studies to any online course. Additionally, neither of these studies surveyed community college

faculty, as each study was conducted at four-year institutions. Future studies could take a qualitative approach in comparing online and face-to-face courses by studying more than a single course or comparing courses across disciplines. Additionally, future studies could look for similarities and differences in assessment practices used by community college faculty when teaching in both the online and face-to-face format.

**Faculty assessment methods of student learning.** Another theme that emerged from various studies involved reviewing faculty assessment practices in online courses. Gaytan and McEwen's (2007) study examined online instructional and assessment strategies. In that study, 85 faculty and 1,963 students were surveyed at two southern state universities with response rates of 34% and 17% from faculty and students, respectively. As part of their survey of faculty, the researchers asked faculty which assessment practices they found to be most effective. Projects, peer evaluations, threaded discussions, online chats, timed quizzes, rubrics, and portfolios were highest among the faculty responses. While this study included a large sample size, response rates to the survey were low, and no attempt to examine non-response bias was included. This limited the ability to generalize the findings on a broader scale. Additionally, the study focused on faculty from four-year institutions within a southern state, which raises concerns as to the applicability of their findings for university or community college faculty located in different geographical regions.

Other studies specifically surveyed community college faculty, including Arend (2007), Lei (2008), and Yates (2005). Arend's (2007) study looked at 60 online

courses offered by the Colorado Community Colleges Online, a multi-state online college system that offers courses from the Colorado community College system, Dawson Community College of Montana, Northwest Missouri State University, and Pickens Tech of Denver. A total of 51 instructors responded to the survey. Arend developed the faculty survey, which was piloted prior to the data collection. As part of the survey, both formative and summative assessment practices of community college faculty teaching in online courses were questioned. The most common assessment practices used among the community college faculty surveyed included discussion, exams, and written assignments. Arend's study found that discussions, written assignments, and papers increased critical thinking abilities among students, while finals/midterms and non-graded assignments decreased critical thinking abilities.

Arend's (2007) study considered the assessment practices utilized by community college faculty members in online courses. However, two concerns emerged by this researcher with regard to this study: (a) geographic location and (b) comparison to face-to-face courses. As this study surveyed community college faculty in Colorado, arguments can be made for conducting similar studies in other geographic locations in order to expand the application of Arend's findings. Additionally, Arend's study focused primarily on faculty teaching online courses with no comparison to how faculty are teaching differently in online and face-to-face environments. Such comparisons would provide meaningful discovery in how faculty should be trained for conducting assessment in online environments.



Lei (2008) randomly surveyed 400 community college faculty members located at two unspecified colleges in a western state, with a response rate of 45.8%. The survey was piloted prior to actual data collection, and questions focused on assessment strategies utilized by community college faculty. While Lei's findings included useful insight into the assessment techniques of community college faculty members, the primary focus of the study was to determine how status (full-time versus part-time) and educational level (doctorate versus non-doctorate) of faculty affected their use of different assessment practices. Thus, comparative analysis of how faculty use assessment practices differently in online versus face-to-face courses was not addressed.

Lastly, Yates (2005) surveyed online instructors at community colleges in Western North Carolina. The purpose of the study was to determine perceptions of faculty in the effectiveness of assessment methods used in online courses. Surveys were sent to 371 faculty members, and 174 responses were returned for a 47% response rate. Data collected included: (a) demographic information about the faculty (e.g. years of teaching experience in online courses, how many online courses taught in a year, and academic discipline), (b) how much (if any) training received for online course development, and (c) number of assessments per course. Based on Yates's quantitative analysis, faculty in her study perceived (a) portfolios, (b) true/false tests, (c) multiple choice tests, (d) short answer tests, (e) essays, (f) online discussions, (g) individual projects, (h) group projects, and (i) problem solving activities as effective assessment practices in measuring student learning. Meanwhile, faculty did not find

self-assessments to be an effective measure of student learning in online courses. Yates's study was similar to Arend's (2007) study in that both quantified the assessment practices used by faculty in online courses, though faculty perceptions as to the effectiveness of those assessment practices differed. This could be indicative of several issues: (a) differing definitions of assessment or effectiveness among faculty, (b) faculty perception of assessment effectiveness may not be a valid indication of actual effectiveness, or (c) differences in subject content and learning outcomes from course to course could result in varied faculty perceptions of assessment effectiveness. Unlike the Arend and Lei (2008) studies, Yates's study did not compare face-to-face and online course assessment methods by community college faculty. Furthermore, none of the studies considered the assessment methods of faculty teaching the same course in both environments.

**Summary.** While the studies outlined above provide a clearer picture of faculty methods for assessing student learning in online courses, the small response rates of the Gaytan and McEwen (2007), Lei (2008), and Yates (2005) studies and the locations of Arend's (2007) study provide an opening for additional research to be conducted. Response rates of 50% or higher are preferred by educational journals and researchers (Creswell, 2008), while professional survey organizations and medical journals often require response rates of 80% or higher (Pyrzczak, 2008) thus the lower response rates of the noted studies encourage further study of this topic.

Indeed, Arend's (2007) study achieved a high response rate, however, the study was limited geographically to the Midwest region, and there is a need to examine other

regions of the country. Additionally, the studies did not specifically address the comparison of assessment methods of community college faculty teaching courses in both the face-to-face and online environments.

### **Chapter Summary**

Assessment has been an integral part of the educational process throughout history. As learning theories and models have evolved, so too, has the definition of assessment. Most recently, assessment has been defined as an ongoing process that can be used for (a) improvement and (b) accountability at the course, program, and institutional levels. This study focused primarily around assessment for improvement at the course level. Thus, a review of how assessment and student learning are connected was necessary. Assessment can influence student learning through the development of surface and deep learning, as well as through formative and summative assessment. Formative assessment is typically provided during the learning process in order to help students learn. Often, it is through formative assessment, or feedback, that students can move from surface learning to deep learning. Summative assessment commonly provides a final indication of knowledge acquired during the learning process. A recommended future study would include looking at assessment for improvement purposes by examining the assessment practices that faculty use to measure student learning which will influence the quality and extent of student learning.

The online learning environment is growing, particularly in community colleges. While some studies have been conducted that analyze the effectiveness of

assessment of student learning in online environments, there is still ample room for more research to be done. Indeed, the essence of assessment dictates continual and frequent analysis and evaluation of the learning process. Additionally, it is essential to acknowledge that assessment and student learning are interconnected, regardless of class format. Thus, ongoing research surrounding assessment in any environment is warranted.

In reviewing assessment and online learning, key themes, which emerged from the literature, were identified and discussed. These themes included: (a) the need for faculty to consider assessment of student learning in online courses as part of the instructional design process, (b) face-to-face and online course comparison, and (c) faculty assessment methods of student learning.

How assessment should be designed in online courses to evaluate student learning was predominant in much of the literature reviewed. For example, Beebe et al.'s. (2009) phenomenological study compared online versus face-to-face courses by interviewing seven faculty members from two-year and four-year institutions about how they transitioned a face-to-face course to an online course. While this study shed light on the considerations to be made when designing online assessments, it included only two community college faculty members, which leaves room for future study of this particular faculty group. Meanwhile, Santilli and Beck's (2005) study emphasized the importance of faculty training. However, Santilli and Beck's mixed method survey was sent to doctoral faculty teaching at Nova Southeastern University. While they had a fairly high response rate (74%) to their survey, the transferability of their findings is

limited, particularly to community college faculty. Other qualitative studies (Liang & Creasy, 2004; San Millan Maurino, et al., 2007; Vonderwell, et al., 2007) have also reviewed how instructors develop and use assessment methods in online instruction and advocated for faculty receiving professional development in these areas.

However, these studies included small participant numbers within each study and focused primarily on assessment in graduate courses or undergraduate courses at four-year institutions.

Another key theme that emerged in the literature involved the comparison of face-to-face and online courses. Kirtman (2009) and Reuter (2009) both conducted quantitative studies comparing the same online and face-to-face courses. Both studies found no significant difference with regard to student grades when comparing students in the two course formats. While both studies were informative, their quantitative nature did not allow for inquiry into the perceptions of the faculty members teaching the courses. Furthermore, these studies did not compare assessment practices of online and face-to-face courses.

The last theme which emerged from the literature involved studies that examined online assessment methods (Arend, 2007; Lei, 2008; Yates, 2005). These studies provided insight into assessment methods used by community college faculty members in online courses. However, each of these studies consisted of quantitative surveys and did not directly compare assessment methods used in both the online and face-to-face formats. Future studies could also examine community college faculty's perceived effectiveness of different assessment methods on student learning in online

courses. Such studies may lead to improvements in the practices used by faculty for assessment of student learning in online courses at community colleges.

Based on the key themes discovered through the literature review, additional study of assessment within the online learning environment is justified. Moreover, with the growth of online courses within higher education coupled with the need for assessment of student learning, further study is essential. Such research will aid in the understanding of the complexities that exist within assessment and online learning. It is evident from the literature that has evaluated assessment and online learning (Arend, 2007; Gaytan, & McEwen, 2007; Gikandi, Morrow, & Davis, 2011; Kirtman, 2009; Klisc et al., 2009; Lei, 2008; Lucas, 2001; Santilli & Beck, 2005; Yates, 2005), that assessment of student learning in online courses needs further exploration and study in order to gain a deeper understanding of what faculty believe to be effective assessment of student learning in online learning environments. Ferguson and Tryjankowski (2009), based on their study comparing face-to-face and online graduate courses, stated: "...what works in the classroom might not work as well in an online course and vice versa...simply transferring a face-to-face course syllabus to an online learning medium does not create equal learning environments and experiences for students" (p. 226). Future studies may want to explore and compare the assessment practices used by community college faculty in face-to-face and online courses, in an effort to add to this limited, but growing, body of literature about assessment and online learning.

### **Chapter 3: Methods**

The purpose of this study was to look at how community college faculty assess student learning, when teaching the same course face-to-face and online.

Additionally, community college faculty members were asked about how they view the effectiveness of their assessment strategies within each format. The following research questions were the focus of this study:

- 1) How do community college faculty members who teach the same course in both face-to-face and online formats assess student learning and what similarities and differences emerge?
- 2) What methods do community college faculty members perceive to be most effective in assessing student learning in online courses compared to face-to-face courses and why?

This study was meant to be an exploratory study that attempted to find similarities and differences among assessment methods used when teaching in the face-to-face and online environments. In addition, it gathered input from community college faculty on the assessment strategies they deem most effective.

#### **Purpose and Organization**

The methods section of a research proposal is meant to outline the researcher's plan for conducting the research study (Lodico, Spaulding, & Voegtler, 2006).

Additionally, the researcher's epistemology and personal biases are disclosed in order to provide a framework and purpose for the design of the study (Stage & Manning, 2003). Thus, in this section, the researcher's philosophical approach toward the study

is discussed, the rationale for using the chosen methodology is explained, and the design of the study is described. Finally, this section outlines the data needed for this study, including the study participants, data collection methods, data analysis procedures, strategies for ensuring soundness of data, and the protection of human subjects.

### **Philosophical Approach**

In any research process, it is necessary to have an understanding of the researcher's philosophical approach toward the study. Knowing the researcher's worldview provides the backdrop for how the researcher developed her research process and methodology. A researcher's theoretical perspective also provides a lens for filtering the biases inherent in a research study. According to Crotty (1998), there are four elements inherent in the research process: (a) epistemology, (b) theoretical perspective, (c) methodology, and (d) methods. This researcher's epistemology, theoretical perspective, methodology, and potential research biases will be explored first within this section. The researcher's chosen methods and procedures for this research study will be discussed later within this section.

**Epistemology.** A researcher's epistemology explains how she views knowledge as existing in the world. Crotty (1998) described three epistemologies: (a) objectivism, (b) constructionism, and (c) subjectivism. An objectivist believes there are absolute truths to be discovered. A constructionist believes there are no absolute truths, but instead truth (or meaning) is constructed based on one's interaction with the world. A subjectivist believes objects may exist, but there are no truths within those



objects, rather meaning comes from what each individual determines as meaning on those objects.

This researcher's epistemology lies mostly within constructionism and the belief that knowledge is constructed, based on one's experiences and interactions with the world. However, the researcher also believes, that while absolute truths do not exist in the world, there are cause and effect relationships which exist that can determine how knowledge is shaped and defined. Thus, the combination of these two epistemologies within this researcher involves a need to construct meaning from what individuals perceive to be true or how individuals believe they should behave under given circumstances, as well as a need for understanding how actions and behaviors can have a predictive and causal effect on outcomes. This duality in epistemology fits this research study, because the researcher is interested in discovering the assessment actions of community college faculty in two different course formats. Meanwhile the researcher is also attempting to gain understanding about which assessment activities community college faculty feel are most effective.

**Theoretical perspective.** Based on this researcher's largely constructionist epistemology, with a shading of objectivism, it is not surprising that this researcher's theoretical perspective resides between the traditional theoretical perspectives of post-positivism and interpretivism. According to Neuman (2003), "the interpretive approach is the systematic analysis of socially meaningful action through the direct detailed observation of people in natural settings in order to arrive at understandings and interpretations of how people create and maintain their social worlds" (p. 76).

Meanwhile Creswell (2007) described post-positivism as having “elements of being reductionistic, logical, an emphasis on empirical data collection, cause-and-effect oriented, and deterministic based on a priori theories” (p. 20). Phillips and Burbules (2000) described post-positivism as a perspective in which the end result of a research study is not to simply understand a causal relationship (which would be the goal of an objective positivist) but rather to understand relationships in order to figure out how we can improve the elements surrounding a relationship in an logical way. Both research paradigms (post-positivism and interpretivism) stem from knowledge-oriented approaches to research (Lodico, et al., 2006). However, neither of these traditional theoretical perspectives fully represent this researcher's desire to apply knowledge to reality.

***Pragmatism: Purpose and assumptions.*** This duality in the researcher's theoretical perspective, framed within an action-oriented mindset (Lodico, et al., 2006), would be a theoretical perspective known as pragmatism. For pragmatists, the purpose of research is not simply to determine absolute truths or to gain understanding but rather to take that knowledge and apply it towards real-world solutions (Creswell, 2008, 2009; Lodico, et al., 2006). Cherryholmes (1992) wrote:

Pragmatists also believe that we would be better off if we stopped asking questions about laws of nature and what is really 'real' and devoted more attention to the ways of life we are choosing and living when we ask the questions we ask. (p. 16)

Thus, pragmatists are less concerned with the various contexts (i.e. social, historical, political, etc.) of what we study and the ways in which those contexts create an effect or meaning. Instead, pragmatists focus on the why and how of research, that is, the

consequences of behaviors and actions and finding solutions (Cherryholmes, 1992; Creswell, 2009). Furthermore, due to the practical bent pragmatists take towards research, they believe in utilizing multiple methods to answer their research questions (Creswell, 2009; Lodico, et al., 2006). Thus, pragmatic research studies can include both quantitative and qualitative methods, because the pragmatic rationale for conducting research studies is based on applicability and practicality.

***Major authors.*** Pragmatism stems from the work of C.S. Peirce, William James, George H. Mead, and John Dewey (Cherryholmes, 1992; Tashakkori & Teddlie, 2003). In the late 1800s, these authors began to write about pragmatism as a challenge to the applicability of the scientific method to the real world (Tashakkori & Teddlie, 2003). In particular, Dewey's 1938 book, *Logic: The Theory of Inquiry*, argued that the pragmatic view is "naturalistic and fluid" compared to objectivism and relativism (Tashakkori & Teddlie, 2003, p. 71).

More recent writers of pragmatism include Abraham Kaplan and Richard Rorty. These authors are considered neo-pragmatists, and their writings focused on defining pragmatic methodology and reducing the either-or paradigm inherent in objectivist and interpretivist worldviews (Tashakkori & Teddlie, 2003).

***Relation of approach to research.*** Of primary concern to the researcher in this particular research study was gaining knowledge and understanding. Through the inquiry of community college faculty, the researcher discovered the assessment strategies used in face-to-face and online environments and the perceptions of the efficacy of those strategies. Thus the researcher's intent was not to determine cause

and effect or gain meaning from course activities but rather to explore this phenomenon to discover knowledge that could eventually be applied towards real world educational challenges.

Learning is a process (Merriam, Caffarella, & Baumgartner, 2007) unique to each individual, and therefore, assessment of learning should be robust enough to measure each individual's knowledge, skills, and abilities against stated learning outcomes. This researcher believed by focusing on deriving meaning from different faculty members' use of assessment methods in the online environment a richer understanding of how assessment can be done effectively might emerge. This social construction of themes through data collection reflects a constructionist and pragmatic approach to research.

**Methodology.** Establishing a research methodology within the research process aided the researcher in determining the type of data collection method that was utilized for the research study. There are three different research methodologies to consider: quantitative, qualitative, or mixed methods. According to Creswell (2008), quantitative research “addresses research problems requiring a description of trends or an explanation of the relationship among variable” while qualitative research “addresses research problems requiring an exploration in which little is known about the problem or a detailed understanding of a central phenomenon” (p. 51). Mixed methods is a combination of both quantitative and qualitative methodologies within a study. Qualitative research provides a way to review processes, and while the information gathered about a process in a qualitative study is rarely generalizable to a

larger population, it does provide a framework for developing new research questions and further study (Stage & Manning, 2003). The research methodology implemented for this research inquiry is qualitative.

Qualitative research is used for studying a phenomenon within context in order to gain understanding (Babbie, 2007; Creswell, 2008, 2009; Denzin & Lincoln, 2005; Lodico, et al., 2006). Additionally, qualitative data allow the researcher to ask broad research questions and explore how processes occur (Creswell, 2008; Lodico, et al., 2006). This researcher was interested in exploring and understanding (a) how community college faculty assess student learning in face-to-face and online courses, and (b) what similarities and differences exist between the assessment methods utilized by community college faculty teaching the same courses in both face-to-face and online formats. Thus, the goal of this study was largely exploratory. The intent was to gain an understanding of how community college faculty assess student learning in both face-to-face and online courses and if those methods can eventually be integrated into faculty development and applied to faculty assessment practices.

The qualitative method was appealing to the researcher for this study, because she was able to identify which assessment methods are being utilized by community college faculty in online and face-to-face courses through interviews with faculty. Additionally, the researcher was able to ask open-ended qualitative-style questions about perceived effectiveness of different assessment methods and if those perceptions affect their assessment design. The researcher felt this information could eventually

lead toward future studies to determine if there are assessment methods that should be considered "best practices" for community college faculty to utilize in their courses.

**Researcher bias.** Researcher bias is inherent in every research study (Creswell, 2008), as it is not humanly possible to be bias-free. A researcher's epistemology and theoretical perspective will each have a bias effect on the results the researcher discovers during the research process. However, research bias does not need to categorically affect a research study negatively, if the researcher is aware of such biases and makes attempts to remain consistent, honest, and ethical with regard to her chosen research process (Berg, 2009; Locke, Spirduso, & Silverman, 2000).

For this particular study, there were several biases that the researcher acknowledged and endeavored to mitigate throughout the research process. First, the researcher strongly values both education and assessment of student learning within community colleges. The researcher was focusing on community college faculty as participants in this study because of her belief in the mission and value of community colleges within the educational continuum. Research focusing on community college faculty assessment practices is limited, and the researcher greatly wanted to contribute to this gap in knowledge. Furthermore, the researcher's philosophical beliefs surrounding education and assessment included the opinion that continuous reflection on and improvement of instructional practices is essential for effective teaching and learning to occur. Such dedication to these convictions, while providing good internal motivation for the researcher to conduct and complete this research study, could influence how this researcher illustrated the findings.

Second, as a current instructor of online and face-to-face courses, the researcher was aware and recognized that her personal opinions and ideas about assessment of student learning online and face-to-face could interfere with data collection and analysis. The researcher, therefore, worked to mitigate such interference during the research process. The researcher attempted to maintain impartiality in the data gathering and analysis process by having protocols in place that aided in the reduction of personal bias.

Third, the researcher assumed there are similarities and differences in the assessment of student learning outcomes in online courses compared with face-to-face courses. More specifically, the researcher believed the differences that emerge from the collected data could be used to inform instructional practices. Additionally, the perceptions of the effectiveness of assessment strategies used by community college faculty, could provide insight into why some assessments are used more commonly than others. Since this study was intended to be exploratory, rather than explanatory, the researcher endeavored to gather and analyze data objectively.

## **Methods**

Based on the researcher's pragmatic perspective, she reviewed both quantitative and qualitative methods for conducting this study. Many of the studies conducted on the assessment strategies of student learning focused on faculty who teach at four-year institutions, within graduate programs, or within specific disciplines. Very few studies have interviewed community college faculty who teach the same course in both face-to-face and online formats questioned their assessment practices

and perceptions of effectiveness of those practices in each format. Of the studies that have included community college faculty, the studies focused on specific disciplines or on a singular format (i.e. either face-to-face format or online format, but not both). These studies used a variety of methods, including quantitative survey methods and qualitative methods, such as grounded theory, phenomenological study, and case study.

After careful consideration of a survey methodology, the researcher determined that using a survey would not glean the information sought from this study. Additionally, the researcher would face great difficulty in overcoming sampling and coverage issues, and gathering adequate sample responses for a quantitative survey (de Leeuw, Hox, & Dillman, 2008; Dillman, Smyth, & Christian, 2009; Fowler, 2009) from this unique participant group (community college faculty who teach the same course in both face-to-face and online formats). The researcher then turned to qualitative methods to review for this study. Upon review of different qualitative methods, as discussed by Babbie (2007), Bogdan and Biklen (2007), Creswell (2007, 2008, 2009), Denzin and Lincoln (2005), Guba and Lincoln (1981), Lodico, Spaulding, and Voegtle (2006), and Merriam (2009), the researcher decided this study would use a qualitative case study method focusing on community college faculty who teach the same courses in both face-to-face and online formats.

**Case study research design.** Many social researchers have written about case studies as a research design (Creswell, 2007, 2008, 2009; Denzin & Lincoln 2005; Merriam, 2009; Stake, 1995, 2005; Tight, 2010; Yin, 2009). Much of what is



written about case studies is its use as both a method and methodology. Indeed, a list of definitions of a case study (see Table 3.1) provides examples of the differing ways to describe case study research. These multiple views of the case study make it a flexible and adaptable research method. This discussion will focus primarily on the merits of case study as a research method.

Table 3.1

*Definitions of Case Study*

Author	Definition
Creswell (2007)	Case study research involves the study of an issue explored through one or more cases within a bounded system (p. 73).
Merriam (2009)	A case study is an in-depth description and analysis of a bounded system (p. 40).
Stake (2005)	Case study is not a methodological choice but a choice of what is to be studied. As a form of research, case study is defined by interest in an individual case, not by the methods of inquiry used (p. 443).
Yin (2009)	A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. The case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis (p. 18).

***Purpose of method.*** The purpose of the case study research design is to consider a phenomenon within a bounded system (Creswell, 2008; Merriam, 2009). Lodico, Spaulding, and Voegtle (2006) proposed that "case study research...endeavors to

discover meaning, to investigate processes, and to gain insight into an in-depth understanding of an individual, group, or situation" (p. 269). More simply, Yin (2009) suggested that case study research should be used to answer "how" and "why" questions or for questions that involve exploratory inquiries.

This study fit the requirements of a case study. The researcher explored the assessment practices utilized by community college faculty to evaluate student learning and how those faculty perceive the effectiveness of those practices and how that impacts the design of their assessment practices. The boundedness of this case was based on the researcher reviewing only community college faculty who teach the same course in both face-to-face and online formats. Furthermore, the research questions, that were the essence of the study, asked exploratory how and why questions.

***Key concepts and features.*** Case study research involves reviewing a case within a bounded system (Creswell, 2008; Merriam, 2009; Stake, 2005; Yin, 2009). A bounded system implies a limited number of people to be interviewed or things to be observed within the study; without this boundedness, the study is not a case study (Merriam, 2009). Case studies can involve a single case or multiple cases (Merriam, 2009; Stake, 2005), and both single and multiple case studies can be looked at holistically or as having embedded units (Yin, 2009). Stake (2005) identified two types of single case studies: (a) intrinsic and (b) instrumental. The intrinsic case study "is undertaken because...one wants a better understanding of this particular case," and

the instrumental case study "is examined to provide insight into an issue or to redraw a generalization" (p. 445).

*Strengths.* There are several different ways to gather data in a case study, which could include both quantitative and qualitative methodologies. For example, data can be collected through interviews, observations, document and audiovisual material review, or survey (Creswell, 2007, 2008, 2009). Thus, one of the benefits of case study research is its flexibility for gathering data.

According to Merriam (2009), the special features of case studies are their ability to be particularistic, descriptive, and heuristic. With case studies, the researcher has the ability to look deeply into a specific, complex situation, that is, it is particularistic. From that unique in-depth look, the researcher is able to develop highly descriptive and heuristic text that provides detailed meaning and context surrounding the case being studied. Such rich explanations of real-world situations can offer insight to possible opportunities and solutions.

*Weaknesses.* According to Yin (2009), there are four criticisms of case studies: (a) lack of rigor, (b) inability to generalize to a larger population, (c) length of time it takes to complete a case study along with the length of documentation resulting from the study, and (d) inability to determine causal relationships.

This research study was a multiple case study. The researcher's goal was to explore the phenomenon surrounding the assessment practices of community college faculty teaching the same course in both face-to-face and online formats and gain understanding from their perceptions. Each study participant was considered an

embedded case unit within the single case, and then a cross-case comparison was conducted to look for similarities and differences among emerging themes across the individual, embedded case units within the single case study. The strengths of this particular research study were: (a) the researcher was able to interview each study participant personally; (b) the study participants provided rich data material that was coded and analyzed for common themes; and (c) the cross-case comparison connected the common themes from the individual study participants. The weaknesses of this research study included the inability to generalize to the larger population of instructors who teach in face-to-face and online formats, due to the anticipated low number of study participants or cases, as well as a lack of random selection among the possible study participants. Additionally, the researcher was not able to conclude any causal relationships in her findings. As far as issues of lack of rigor in the study and length of time to complete the study, the researcher built in strategies to address these issues that are discussed later in this section.

***Process.*** In case study research, data can be collected by observation, interviews, and document review (Creswell, 2007, 2008; Merriam, 2009; Yin, 2009). Creswell (2007) suggested the following steps and considerations to follow when applying the case study method:

- 1) Determine if a case study approach is appropriate to the research problem.
- 2) Researchers next need to identify their case or cases. These cases may involve an individual, several individuals, a program, an event, or an activity.
- 3) The data collection in case study research is typically extensive, drawing on multiple sources of information, such as observations, interviews, documents, and audiovisual materials.

4) The type of analysis of these data can be a holistic analysis of the entire case or an embedded analysis of a specific case.

5) In the final interpretive phase, the researcher reports the meaning of the case, whether that meaning comes from learning about the issue of the case (an instrumental case) or learning about an unusual situation (an intrinsic case). (pp. 74-75)

Within case study research, data can be analyzed by coding data and then doing a constant comparison of data (Bogdan & Biklen, 2007; Creswell, 2007, 2008; Merriam, 2009). The coding of data and constant comparative method were developed by Glaser and Strauss (1967) later refined by Strauss and Corbin (Corbin & Strauss, 1990). Coding of data is a way of reviewing data and making note of recurring ideas in order to develop categories and themes (Creswell, 2007, 2008; Merriam, 2009). Coding allows the researcher to reduce large quantities of data, such as interview transcripts and other documentation, into smaller, significant themes. The constant comparative method provides the researcher with a way to look at multiple data sources and identify similarities and differences across those data sources (Bogdan & Biklen, 2007; Creswell, 2007, 2008; Merriam, 2009).

In summary, the researcher determined the case study approach was a suitable method for this study, and she identified the cases to be analyzed. For this study, the researcher interviewed study participants and then reviewed and coded interview transcripts. Each study participant was analyzed as a single case. Finally, a cross-case constant comparative method was used to compare the single cases for final analysis and interpretation.

***Important authors.*** In a review of literature, several authors emerged as frequently cited writers about case study research. These authors included Sharan Merriam, Robert Stake, and Robert Yin. Other contributing authors include John Creswell, Norman Denzin, and Yvonna Lincoln. Case study research is noted by all of these researchers as a commonly used method in social science and educational research studies.

### **Procedures**

Research studies involve the collection and analysis of data, based on the research questions being addressed. This section will discuss the data needs, study participants, data collection techniques, data analysis, protection of human subjects, and strategies for ensuring the soundness of data.

**Data needs.** For case study research, the data collected need to provide the researcher with a way to gain understanding from the case being studied. Additionally, case study research observes a bounded system in order to explore a phenomenon with that system (Creswell, 2008; Merriam, 2009; Stake, 2005; Yin, 2009). Thus, for this particular study, the researcher had to identify community college faculty who taught both face-to-face and online courses. Other factors which formed boundaries within the case study, beyond finding community college faculty who met this criterion, included faculty who taught accounting courses within the Oregon community college system. Oregon community colleges have a shared course numbering system, so that any student taking an accounting course at an Oregon community college will be able to easily identify similar courses. These additional

factors were chosen by the researcher to limit the number of possible cases to be studied and to ensure each case can address the research questions posed (Merriam, 2009) while maintaining consistency and commonality during the data collection stage.

**Study participants.** In order to locate community college faculty who taught the same courses in both face-to-face and online formats for an interview, the researcher contacted division deans or department chairs overseeing Accounting courses at Oregon community colleges to assist in the identification of such faculty. These individuals, known as gatekeepers (Creswell, 2007, 2008), schedule and assign faculty to courses, and were able to provide the names and contact information for faculty members who teach courses in both modalities. The researcher also reviewed course schedules on the websites of these local community colleges in order to identify additional faculty who taught the same course in both formats.

**Data collection techniques.** Once community college faculty who taught the same course in both face-to-face and online were identified, the researcher contacted those individuals, via e-mail or phone, to request participation in the study and to determine eligibility in the study. For this particular study, it was essential that all faculty members (either full-time status or adjunct/part-time status) identified for the study share the common criterion of teaching the same course face-to-face and online within one of the Oregon community colleges, in order to obtain the data sought by the researcher. This shared criterion among study participants aided in maintaining the quality of data collected (Creswell, 2007). This type of purposeful sampling,

known as criterion sampling, allowed the researcher to identify available study participants who shared a common criterion and provided the researcher with data to answer the specific research questions (Creswell, 2007; Merriam, 2009).

The researcher interviewed six study participants individually by phone. Creswell (2007) recommended four to five participants when using case study methods, however the final number of participants was determined based on when the researcher believed saturation (Merriam, 2009) had been achieved. Interviews were semi-structured with open-ended questions (Creswell, 2009). Additionally, some demographic questions were asked to determine basic characteristics (i.e. number of years teaching in both formats and educational level) about each participant (see Appendix A). Each interview was digitally recorded and hand-written notes were taken by the researcher throughout the interviews. The researcher also utilized an interview protocol (Creswell, 2009) for the recording of interviews to ensure consistency in data gathered from each participant. Upon completion of the interviews, transcripts were developed from the recordings, and both the transcripts and any hand-written notes were reviewed by the researcher.

**Data analysis.** Data analysis was conducted upon completion of the interviews and included reviewing the transcripts of the interviews to locate commonalities and recurring ideas expressed within the transcripts. This process, known as coding and categorizing of data (Babbie, 2007; Creswell, 2008; Lodico, et al., 2006 ), allowed the researcher to identify themes from the data. Creswell (2007)



recommended the following steps for the analysis of qualitative case study data, and these were accomplished by the researcher as described below:

1. Manage data. Throughout the data collection and analysis process, the researcher organized and tracked data.
2. Reading/Notes. Once transcripts were completed for all interviews, the researcher read each interview and made notes on the transcripts of initial impressions.
3. Describing. As the researcher reviewed the data, memos were written to provide context about the case being studied, and coding began to be developed. At this point, the researcher reviewed only individual case studies.
4. Classifying. In subsequent reviews and coding of data, the researcher began to classify codes into categories. Then, the researcher began the cross-case comparison of the individual case studies.
5. Interpreting. After categories had been established, the researcher began to interpret themes or natural generalization of categories.
6. Representing/visualizing. Lastly, the researcher presented a picture of the case through the use of descriptive narratives about the case and through the use of tables and figures. (pp. 156-7)

The researcher followed these outlined steps carefully throughout the data analysis process. Furthermore, the researcher maintained a case study database (Yin, 2009) that contained all documents, transcripts, and notes obtained during the data collection phase. This database allowed the researcher to classify, file, and store all documents in an organized manner. The researcher reviewed all transcripts and began making notes to describe the data. After an initial review, the researcher began coding each case transcript in order to pull out emerging themes and to develop an individual case profile. Upon the completion of all the individual case profiles, the researcher

interpreted the data through a cross-case comparison analysis and completed a written report of the results.

A cross-case comparison is a common qualitative research method in which the researcher collects data on several individual cases. After individual case study reports are created, the researcher begins "to build abstractions across cases" through inductive analysis (Merriam, 2009, p. 204). Yin (2009) suggested conducting a cross-case analysis by developing a word table, which allows the researcher to search for word and phrase patterns that can lead to thematic ideas.

**Evidence of soundness of data, analysis, and interpretation.** Within a research study, it is essential for the researcher to take steps to gather, analyze, and report accurate data. As part of this process, the researcher must consider the reliability and validity of the data collected (Babbie, 2007; Creswell, 2007, 2008, 2009). Merriam (2009) discussed internal validity in terms of credibility and reliability, and external validity as transferability within qualitative research.

**Credibility.** Credibility is a type of internal validity that considers how realistic the findings of the data are when held up to real world experience and knowledge. In other words, does the data make sense within a given context? Some of the ways that researchers can achieve credibility are through peer review, triangulation, member checking, and a statement of researcher bias (Creswell, 2007; Merriam, 2009). For this case study, each of these methods was utilized.

Internal validity issues in qualitative research can involve questions surrounding construct validity, or whether the questions asked provide meaningful

responses to the research questions (Creswell, 2008). Internal validity was handled through peer review of the semi-structured interview questions by experienced researchers. This peer review was sought out by the researcher to ensure the efficacy of the interview questions. Based on suggestions given by the experienced researchers, the interview questions were amended for clarity.

Triangulation can be achieved in various ways (Denzin, 1978). For this particular study, triangulation was achieved through the gathering of data from multiple sources (Creswell, 2007; Denzin, 1978) through "interview data collected from people with different perspectives or from follow-up interviews with the same people" (Merriam, 2009, p. 216). The researcher spoke to several individual study participants and began coding each individual case until saturation was achieved and common themes began to emerge across the individual case studies. This effort to triangulate data from multiple sources enhances the credibility of the results as it allowed the researcher to confirm the likeness of the experiences of the individual cases when looked at holistically.

Additionally, the researcher asked study participants to review her findings for credibility. This process, known as member checking, is essential for qualitative studies (Guba & Lincoln, 1981). Member checking was conducted by giving each study participant the opportunity to review and comment on their (a) verbatim interview transcripts, and (b) individual profiles, for clarity and authenticity of their responses.

Lastly, this qualitative researcher acknowledged that her own experience and knowledge influences how data were analyzed and interpreted. However, whenever possible, the researcher attempted to use the words of the study participants in describing their experience, in an effort to minimize a projection of their experience through the researcher's lens. Furthermore, the researcher has provided personal biases with regard to this project earlier in this chapter and endeavored to maintain objectivity throughout the data collection and analysis processes.

**Reliability.** Reliability is a type of internal validity that considers the ability to replicate the data gathered, analyzed, and interpreted if the exact study were repeated. Reliability is traditionally a difficult aspect within qualitative research, as the individuals involved are dynamic and ever-changing, as is typical within human behavior (Merriam, 2009). Thus, Guba and Lincoln (1981) developed ways to attain reliability within a qualitative study by suggesting the use of an audit trail to augment dependability, or consistency, of the data.

Thus, dependability for this study was achieved by the use of an audit trail to document each aspect of the case study. This audit trail began with the development of the method section of this report, which dictated how data would be gathered, analyzed, and interpreted. The researcher further refined this process by submitting an Institutional Review Board (IRB) report that included the recruitment procedures for study participants, an interview protocol (Creswell, 2007, 2009) that was used with each study participant, and the process for analyzing and interpreting the data. The

researcher also kept detailed records of all interactions with participants within a confidential database, including verbatim transcripts and other documentation.

Once data had been gathered, the researcher carefully followed the process of coding the data, organizing the coded data into categories, and then finally connecting the categories to the research questions.

***Transferability.*** Transferability is a type of external validity that takes into the account the ability to apply the results of the data to other situations (Merriam, 2009). Again, within qualitative studies, transferability is difficult to achieve, since generalizability cannot occur due to the small, and often, non-random sampling that typically occurs. Guba and Lincoln (1981) have argued that the notion of transferability is not the responsibility of the original researcher, but instead, is put upon those who want to use the interpretation of data in other applications. Thus, the best way to help others with this responsibility is for the original researcher to use thick, rich descriptions from the individual cases (Merriam, 2009).

For this particular study, the researcher made every attempt to use the individual cases own words when conveying substantive aspects of their interviews, in an effort to provide the reader with rich descriptions. By providing the study participants' own testimony of significant responses to interview questions, this allows the reader to make their own judgment with regard to the applicability (and thus, transferability) of the data to other situations.

In summary, with any research study, it is necessary for the researcher to endeavor to preserve the credibility, reliability, and transferability of the data

collection, analysis, and interpretation processes. For this particular study, the researcher employed a variety of measures, including peer review, triangulation, member checking, and a statement of researcher bias to achieve credibility. For data reliability, or dependability, the researcher maintained an audit trail to document the rigors of the data collection, analysis, and interpretation of data. Finally, for transferability, the researcher used rich, thick descriptions to help readers determine the applicability of the data to other situations.

**Protection of human subjects.** In any study, it is essential for study participants to be protected from harm, for ethical reasons (Creswell, 2009). For this particular study, the researcher sought and gained approval from the Oregon State University Institutional Review Board (IRB) prior to the commencement of the study. As part of the data collection process, the researcher fully informed each individual she contacted concerning the purpose of the study and the voluntary nature of the study. Additionally, once the researcher identified willing participants, she obtained a signed consent form from each participant. Participants' names and institutional affiliations are being kept confidential and stored separately from the data collected. Names of participants were altered, as needed, for the reporting of data of this study. Finally, all documents obtained from the study participants and transcripts developed through the interview process were coded for confidentiality and stored in a secure location.

## **Chapter Summary**

Within any research study, the researcher's philosophical approach toward their study, that is, their epistemology, theoretical perspective and biases, should be documented in an effort to fully understand the chosen methodology and methods for conducting a research study. This researcher believed strongly in a constructionist epistemology, but theoretically, falls within a pragmatic perspective. The goal of the researcher for this research study was to explore the practices of and perceptions about assessment methods of student learning, as employed by faculty, in both face-to-face and online courses in order to develop the reasons for utilizing such practices in instruction. Qualitative methodology allowed this researcher to explore this phenomenon and to develop understanding about it. However, as with all qualitative research studies, this researcher was aware of potential personal biases that may arise throughout the research study and made reasonable and knowledgeable attempts to reduce bias.

For this research study, the researcher utilized a case study research design, as it allowed the researcher to ask the how and why questions that frame the research questions for this study. Six Oregon community college faculty members within the accounting discipline were interviewed for this study. Both full-time and part-time faculty were included in this group and each participant had taught BA 211 Principles of Accounting I in both the face-to-face and online format. Each participant was asked semi-structured questions, as dictated by the interview protocol. Each interview transcript was reviewed and coded independently, and once all individual interview

data were collected and analyzed, a cross-case comparison was conducted. Case study processes and procedures were followed throughout the study to maintain the soundness of the data collected, analyzed, and reported. Several internal and external validity measures were taken, including peer review, member checking, triangulation, and the use of rich, detailed descriptions to maintain data credibility, reliability and transferability. The procedures outlined by the IRB were followed to ensure the protection of human subjects.



## **Chapter 4: Results**

The purpose of this chapter is to present the findings from the analysis of the research study. The intention of this study was to determine what differences and similarities exist in the assessment methods used by community college instructors who teach the same course in both online and face-to-face formats. Furthermore, the study considered the perceptions of these community college faculty with regard to the effectiveness of the assessment methods used to evaluate student learning in both online and face-to-face formats. This chapter consists of three sections. Section one provides a characteristic profile for each study participant (each individual case study). Section two discusses the evidence of soundness and credibility with regard to the findings. Section three summarizes the study findings by each in response to the specific research questions: (a) How do community college faculty, who teach the same course in both face-to-face and online formats, assess student learning, and what similarities and differences emerge? and (b) What methods do these community college faculty perceive to be most effective in assessing student learning in online courses compared to face-to-face courses and why? It then concludes with a cross-case analysis of all of the study participants.

### **Profiles of Study Participants**

This section provides a characteristic profile of each of the community college faculty members (each case study) who participated in the study, including their years of experience teaching in both the online and face-to-face environments, educational credentials, and any training or technical support they have received for online or face-

to-face teaching. In order to maintain confidentiality of the study participants, each participant was given an alias and the institutions for which they teach will not be revealed, other than to indicate all participants teach accounting courses, specifically BA 211 Principles of Accounting I, either full-time or part-time at a community college in Oregon. Table 4.1 provides an overview of the characteristics of each study participant.

Table 4.1

*Characteristics of Community College Faculty including Status, Teaching Experience, and Educational Credentials*

Faculty	Status*	Teaching Experience**		Educational Credentials
		Face-to-Face	Online	
Sheila	Adjunct	15 years	1.5 years	MBA
Ryan	Full-time	31 years	10 years	MBA, CPA, CMA, CFM
James	Adjunct	32 years	10 years	MA, PHD, CPA
Andy	Full-time	13 years	11 years	MBA, CPA
Mark	Full-time	27 years	12 years	MBA
Diane	Full-time	5 years	5 years	MBA, CPA***

\* Status at the community college where the instructor primarily teaches

\*\* Teaching Experience includes teaching experience at any higher education institution.

\*\*\* CPA license was expired at the time of the interview, but was held at the beginning of instructor's teaching experience.

**Sheila.** Sheila was an adjunct accounting instructor with 15 years experience teaching, seven years at the community college level. Sheila held a Masters in Business Administration (MBA) degree. Most of her teaching experience was within the face-to-face format, but she had been teaching online at the community college level for the past year and one half. Sheila's institution provided technical help for its online instructors through a phone help line or in-person help. Additionally, she was required to go through Quality Matters training for her online courses before she began to teach online.

**Ryan.** Ryan was a full-time accounting instructor with over 30 years of face-to-face teaching experience within the community college environment. He held several educational credentials, including an MBA, Certified Public Accountant (CPA), Certified Management Accountant (CMA), and Certified Financial Manager (CFM). Ryan had also taught at the university level, and he had 10 years of online teaching experience. At the Oregon community college where he taught, instructors were required to go through a Quality Matters course as part of their online teaching training. His community college also provided technical and instructional design support for instructors who teach online, hybrid, or web-enhanced classes.

**James.** James was a part-time community college instructor with over 30 years of experience teaching face-to-face and 10 years experience teaching online. James' educational credentials include: Master in Arts (MA), Doctorate of Philosophy (PhD), and CPA. He taught a variety of economics, accounting, and finance courses in both the community college and university settings during his teaching experience.

He went through different online teaching workshops, including Quality Matters, at the various institutions at which he taught. He noted some of the biggest changes in online teaching over the past 10 years included increased automation of exams and the growth of interactive media, such as videos and podcasts. At the current Oregon community college, where he taught accounting courses, including BA 211 Principles of Accounting I, he had great technical support for his online teaching components.

**Andy.** Teaching was a second career for Andy; he worked in finance and accounting fields prior to his teaching career in higher education. He held both the MBA and CPA credentials. Andy taught face-to-face for 13 years and online for 11 years. Courses taught included accounting and business at both the community college and university levels. He worked as a full-time accounting instructor at an Oregon community college. Andy had been through Quality Matters training for his online courses, and he participated in one other teaching workshop for his face-to-face courses. His community college offered technical support for his online teaching needs by providing both phone and face-to-face help to instructors.

**Mark.** Mark was a seasoned community college teacher, with 27 years of experience and an MBA. He was one of the first instructors at his Oregon community college, in 2000, to develop and teach a course online. He taught a variety of accounting and business courses as a full-time instructor. Quality Matters training was offered at his community college, but he had not formally participated in those trainings; instead he chose to attend workshops and conferences offered by local accounting associations that provided instructional content about teaching accounting

in both the face-to-face and online formats. He also attended faculty in-service sessions, which highlighted teaching methodologies and techniques for teaching online. His college also offered technical support and training for using the college's chosen online course management system.

**Diane.** Diane was relatively new to teaching, compared to the other study participants, as she had been teaching full-time in both the online and face-to-face environments for the past five years. She primarily taught accounting courses, but she had also taught Business Math courses and computer application courses, such as QuickBooks and Excel for Accounting. Diane held an MBA and previously held a CPA certification. Diane received training in online teaching through the Quality Matters program offered at her institution, and she has been certified as a Quality Matters reviewer. This certification gave her the ability to review online courses and determine if they met the Quality Matters standards. She participated in teaching workshops provided by her institution as well as training for using the online course management system that her institution implemented for online and hybrid instruction. Her institution also provided technical support to instructors who use the course management system.

**Summary.** This section provided individual profiles of each of the accounting faculty who were interviewed as part of this case study. Teaching experience in the face-to-face environment varied from five years to over 30 years, and in the online environment experience ranged from one year to 12 years. Both full-time and part-time instructors were interviewed, and each faculty member actively taught online and

face-to-face accounting courses at the community college level, particularly BA 211 Principles of Accounting I. There were several common themes that emerged from these individual profiles, including: (a) technical support and training were available to each of the participants by their respective institutions; (b) Quality Matters training, a peer-reviewed process for assessing the quality of the instructional design of online and hybrid courses, was offered by all of the participants' institutions, though faculty participation in the training is not required at every institution; and (c) each faculty member held a minimum educational credential of a Masters in Business Administration (MBA).

### **Findings in Response to the Research Questions**

This section addresses the responses of each of the study participants to the two research questions posed in this study: (a) How do community college faculty who teach the same course in both face-to-face and online formats assess student learning, and what similarities and differences emerge? and (b) What methods do community college faculty perceive to be most effective in assessing student learning in online courses compared to face-to-face courses and why?

**Research question 1: Assessment methods used.** The first research question was meant to discover which assessment methods community college faculty use to measure student learning in face-to-face and online course environments. The purpose of this question was to determine frequency of assessment methods and if any differences exist in methods between course formats (online versus face-to-face). This

section will provide responses to the first research question from each case study and then a cross-case analysis of the findings will follow.

**Sheila.** Sheila was a seasoned face-to-face instructor but fairly new to the online environment. At the community college where she taught accounting courses as an adjunct, there was strong technical support for online instructors and the accounting department within which she worked. Sheila taught BA 211 Principles of Accounting I in both face-to-face and online formats. The accounting department at her community college required all instructors to use the same course outcomes for BA 211, regardless of format (i.e. face-to-face or online). Thus, there were no differences in the course learning outcomes for the online and face-to-face BA 211 courses that Sheila taught. Furthermore, Sheila used the same textbook for both formats of the course. This textbook was generally used by all accounting instructors teaching BA 211 at her community college, though it was not required that instructors use the same textbook.

Sheila used a variety of assessment methods to assess student learning in both her face-to-face and online BA 211 courses, including discussions, homework, chapter quizzes, and exams. The singular difference was the inclusion of a group project in the face-to-face course instead of a comprehensive final exam. Meanwhile, Sheila's online class took a comprehensive final exam, but did not complete the group project. Sheila used a product, called *My Accounting Lab*, which was provided by the publishers of the course textbook, to administer and score weekly homework and quizzes as well as the exams. Students from both the online and face-to-face formats

of the course would go into *My Accounting Lab* and download Excel templates or tests for their homework assignments, chapter quizzes, and exams. The project that she assigned in the face-to-face class she graded manually, by hand. For the most part, Sheila used the same assessment methods in her face-to-face and online courses, with the exception of a group project she used exclusively with her face-to-face classes instead of a comprehensive exam, which was given to her online class.

**Ryan.** Ryan has a long tenure as an accounting faculty member within the community college environment and had experience in both the face-to-face and online environments. Due to his experience and position within his community college, he was one of the first faculty members at his community college to teach online. Ryan taught several accounting courses, including BA 211 Principles of Accounting I, in both the face-to-face and online formats. The course outcomes that he used for BA 211 were exactly the same for both formats of the course, as they were the standard course outcomes for BA 211. As a full-time faculty member within his community college's accounting department, he participated in selecting the textbook and writing the course outcomes for BA 211. According to Ryan, many of the course outcomes were driven by the content covered within the textbook, and all BA 211 faculty members were required to use the same course outcomes when teaching BA 211, but they were not required to use the recommended textbook, though many do.

With regard to the assessment methods used to assess student learning, he employed exactly the same methods in both formats: homework, quizzes, and mid-term and final exams. He used *My Accounting Lab*, which is software provided by the



publisher of the textbook used for the course, for assigning and grading homework problems, quizzes, and exams. His rationale for keeping the assessment methods exactly the same was because *My Accounting Lab*:

is superior to anything I can do in the classroom, because students can take practice tests...and each student has an individualized study outline and they follow that so they can improve when they take the real test.

The accounting software provided immediate feedback to the students; so they were aware of the areas where they needed more help and they could choose to do additional homework assignments for practice, or contact Ryan for individual help in grasping the concepts with which they were struggling.

In summary, Ryan used the accounting software, *My Accounting Lab*, provided by the publishers of the textbook his accounting department recommends for BA 211, to help him assess student learning in both formats of his BA 211 classes. He used the same assessment methods to assess student learning in both his online and face-to-face BA 211 courses.

**James.** James was a veteran instructor in both the online and face-to-face formats, teaching accounting courses part-time at an Oregon community college. James taught BA 211 in both the face-to-face and online format. The course outcomes for BA 211 were developed by the accounting faculty at his community college, and all faculty were required to use the same course outcomes in order to maintain uniformity among all the BA 211 courses being taught. Thus, the course outcomes that he used for that course are exactly the same for both formats. The rationale for all of the accounting faculty at his community college using the same course outcomes

and accounting software for assessment of student learning, was to ensure students received standardized content. James stated:

Because a student may have me online for 211, then have a different professor on the ground for 212, and then somebody, a third professor, on whichever [sic] modality for 213. So we can't really, because students can take different classes at different campuses under different professors, we really need to keep (and it is a three quarter sequence) we really got to keep those things similar. We can't have a teacher running off and doing their own thing.

By providing this standardization of learning outcomes and assessments, students could take BA 211, BA 212 and BA 213 from a variety of instructors, but consistency in their learning knowledge and skills was sustained.

As a part-time faculty member, James was provided syllabi for the courses that he taught (including BA 211), the course outcomes that he was required to use, and a suggested textbook that contained content that would meet the course outcomes. All of this information was communicated to him through one of the full-time accounting faculty members, and this faculty member also acted as a point of contact for James, if he had questions about teaching the course.

For the assessment of student learning, James used the following methods for both his face-to-face and online courses: (a) homework problems, (b) weekly quizzes, and (c) mid-term and final exams. He used accounting software called *My Accounting Lab* and offered by the textbook publisher to provide these assessments to students. In doing so, he exposed students to similar assessments that they would be expected to complete as they progress through the accounting courses that follow BA 211, such as BA 212 and BA 213. Thus, James used the same course outcomes and assessment methods for both of his online and face-to-face BA 211 courses, because doing so

provided uniformity for students who take the full sequence of accounting courses at his community college.

**Andy.** Andy had been actively teaching both online and face-to-face for over 10 years. He taught accounting courses full-time at an Oregon community college, including BA 211 Principles of Accounting I, in both the face-to-face and online formats. At Andy's community college, accounting faculty members developed the course outcomes for each course, such as BA 211, and all faculty members were expected to use and teach to those outcomes. Thus, the learning outcomes for BA 211 that Andy used are the same in both his online and face-to-face courses. Additionally, Andy used the same textbook (recommended by the accounting faculty) for both formats of the course. Andy employed the same assessment methods for both his online and face-to-face courses, because he did not "view the classroom experience as an additional time for assessment, it's additional time for me to work with students."

For assessment methods, Andy used the same assessment methods to measure student learning in both his face-to-face and online courses. As Andy stated:

So basically, my class assessment is done through two ways, one is homework...we do a chapter a week, and every week there are homework problems that students are required to submit, prepare and submit online through this homework manager system. And I, they're given algorithmic versions of those homework problems to practice with and then they submit the problems. There's also every week a multiple choice quiz over that chapter. Quizzes will contain multiple choice. Multiple choice with a certain number, some problems are conceptual others require sort of, some amount of calculation, to come up with a correct answer. Then there's a mid-term exam and a final exam, also multiple choice.

Lastly, Andy also discussed that he included writing assignments as part of his assessment methods in higher level accounting courses (but not in BA 211), because he heard feedback from peers, who work in the accounting industry, that new accounting graduates have great technical skills but poor writing skills. However, at the BA 211 Principles of Accounting I course level, he focused solely on building basic accounting skills and conceptual knowledge. In summary, Andy used the accounting software provided by the publishers of the textbook for BA 211 to assign homework problems, quizzes, and exams for his assessment of student learning.

**Mark.** Mark had been a full-time faculty member at an Oregon community college, where he taught accounting courses for 27 years. As one of the first instructors at his college to teach online, he was also a veteran online instructor. Mark taught the full sequence of the Principles of Accounting I courses (BA 211, BA 212, BA 213) both online and face-to-face. He used the same learning outcomes for both the online and face-to-face formats of BA 211, and he used the same textbook. The learning outcomes for the course were developed by the full-time accounting faculty and were used by all faculty members teaching accounting at his community college. He commented that there was about a decade of time, earlier in his teaching tenure, when the accounting faculty from the various Oregon community colleges met with the accounting department chairs from the Oregon universities to discuss "accounting education, accounting teaching methods, different things that are working and different programs the universities had," but that group had disbanded. At the time of

the interview, the Oregon community college full-time accounting faculty had attempted to get together from time to time:

to come up with similar degrees or have their degrees cover basically the same material...so we have a like-product on a statewide basis, wherever possible...with similar course content as well as course numbers or [common] syllabi.

For assessment methods of student learning in BA 211, Mark used slightly different methods. For his face-to-face class, he assigned homework problems, quizzes, and exams. The quizzes and exams he gave were mostly multiple choice, which were graded with a Scantron device. He also added a handwritten question that requires computation and analysis to solve, and he graded that question manually.

For the online version of BA 211, Mark used the same homework problems, quizzes, and exams that he gave in his face-to-face class, but he also offered students two extra credit assignments. For each chapter students could: (a) respond to a forum question for extra credit points, and (b) do additional homework for extra credit points. Students typically submitted their homework problems, quizzes, and exams electronically to him. He provided feedback to them by releasing the solutions to homework problems on the day after the assignment was due. Quizzes and exams were graded through the college's course management system, so students got immediate feedback on their performance, upon completion of the test. The course management system would randomly draw from test bank questions for quizzes and exams, which minimized cheating on tests. Thus, while Mark used the same learning outcomes and textbook for both his online and face-to-face courses, he altered his assessment methods slightly in each format. For both formats, he used homework

problems, quizzes, and exams to assess student learning, but in the online format, he offered students additional opportunities (for extra credit) to complete a forum question or homework problem.

*Diane.* While Diane was the least experienced instructor of all the study participants, she had actively taught accounting classes in both the online and face-to-face environments for five years, and she was a certified Quality Matters reviewer of online courses at her institution. Diane worked at an institution that provided technical support and teaching workshops to aid faculty in their instructional endeavors. Diane taught several accounting courses both face-to-face and online, including BA 211, Principles of Accounting I. For both formats of BA 211, she used the same learning outcomes and textbook. These learning outcomes were developed by the accounting faculty for each course, and once they had been created by the faculty, the college mandated that all faculty members, full-time and part-time, were to use the same outcomes for the course, regardless of instructional format. New accounting faculty members were introduced to the learning outcomes for each accounting course when they met with Diane, who was the accounting department chair.

Diane also mentioned she that she used the software called *My Accounting Lab*, which was offered by the publisher of the textbook that she used for BA 211. She felt this software had changed how she taught online: "they're great because students get immediate assistance. As far as instructing, most of these grade the

assignments, they're pretty manageable." Both of these aspects of *My Accounting Lab* provided more support to instructors and students than what was previously available.

Diane used similar assessment methods in both her face-to-face and online BA 211 courses. These assessment methods included homework problems and exams (a mid-term and final). While the assessment methods that Diane used in her online and face-to-face BA 211 classes were similar, how she implemented them was somewhat different. In the face-to-face class she had students work frequently on in-class assignments together, and in her online class, she assigned students to some group discussions where they had to work together to develop an assignment, but the group work was much less than in the face-to-face class.

In summary, Diane's BA 211 Principles of Accounting I course had the same learning outcomes and textbook for online and face-to-face options, and she used the same assessment methods (homework problems and exams) in both. Diane used the textbook publisher's software called *My Accounting Lab* to assign homework problems and exams, which provided immediate feedback to students on their progress in the course and helps her with grading.

**Assessment methods used: Cross case analysis.** This section discusses the assessment methods community college faculty members used when teaching the same course in online and face-to-face formats. The purpose of this section is to explore similarities in assessment methods and to highlight any differences that existed among the cases. Through the examination of similarities, a pattern of common assessment methods arise that could eventually, upon further study, be

molded into best practices. Likewise, through the exploration of differences, new ways for assessing learning could begin to emerge. Finding both commonalities and variations of assessment methods could help to form questions on how to provide support to instructors in refining similar assessment methods and developing different assessment methods.

Asking about the methods used to assess student learning in each course format was meant to develop a foundation for which to ask about the effectiveness of those methods, which will follow in the next section. As part of the consideration for the first research question, it was also necessary to determine what differences, if any, existed in the course learning outcomes, as different learning outcomes within each learning modality may have demanded the use of different assessment methods. From the open-ended questions asked to the study participants to address the first research question, two anticipated themes emerged: (a) similar course learning outcomes, and (b) common assessment methods used. A surprising theme that arose from the cases' responses was the study participants' heavy use of the accounting software (known as *My Accounting Lab*) provided by the textbook publishers to administer the assessment methods.

***Similar course learning outcomes.*** Each faculty member used the same course learning outcomes for both their face-to-face and online course formats. As one faculty member noted, one of the primary reasons for having the same course learning outcomes for any given course (e.g. BA 211 Principles of Accounting I) is to provide a standard of learning for the students. Students have to take a sequence of



accounting courses to complete an accounting program, and it is essential that students acquire the same foundational knowledge and skills within each sequential course, so that the knowledge and skills build from one course to the next course. Thus, having the same learning outcomes, regardless of learning modality, for students to achieve in BA 211 was key to students being able to successfully move into the next course.

*Developed by accounting faculty.* Due to the desire of the accounting faculty to provide students with standardized content, regardless of learning modality or instructor, the learning outcomes for each accounting course were developed collaboratively by the accounting faculty at each community college represented by the study participants. Once learning outcomes were developed for a course, they were then required to be used by all accounting faculty (full-time and part-time). This expectation was often communicated to new faculty by the accounting faculty department chair or a senior full-time faculty member. All instructors indicated the learning outcomes for each course were updated from time to time, to respond to changes in the accounting field.

*Textbooks.* Unsurprisingly, each instructor also used the same textbook for both learning modalities (online and face-to-face). Again, this tied into the rationale of having the same learning outcomes so that students received standardized content. As the accounting faculty reviewed course learning outcomes from time to time for updates and revisions, they also reviewed potential textbooks to suggest for faculty use. Often the textbooks chosen were those that contained content closely related to the course learning outcomes. Thus, by using the same textbook that aligned with

learning outcomes, students could easily move between accounting instructors and learning formats, while they progressed through the sequence of accounting courses, due to being exposed to similar learning objects.

**Assessment methods.** The assessment methods used by all of the study participants included: (a) homework, (b) quizzes, and (c) exams. Table 4.2 shows the similarities and differences in assessment methods that the individual cases used in their online and face-to-face courses.

Table 4.2

*Similarities and Differences in Assessment Methods in Online and Face-to-Face (F2F) Formats*

	Homework		Quizzes		Exams		Group Project		Extra Credit	
	Online	F2F	Online	F2F	Online	F2F	Online	F2F	Online	F2F
Sheila	X	X	X	X	X	X			X	
Ryan	X	X	X	X	X	X				
James	X	X	X	X	X	X				
Andy	X	X	X	X	X	X				
Mark	X	X	X	X	X	X				X
Diane	X	X	X	X	X	X				

**Homework.** Every instructor assigned weekly homework problems to students in an attempt to help students develop accounting skills and knowledge. Many of the instructors commented on accounting being a course that requires a lot of practice.

The homework problems provided students with the opportunity to get the practice they needed while acquiring content knowledge. Homework was also a chance for the instructors to encourage students to do group work and get peer feedback by working on their homework problems together.

*Quizzes.* Likewise, each instructor used regular quizzes to help students identify areas of strength and weakness in their knowledge of accounting concepts. These quizzes provided students with formative feedback on how they were doing in the course and helped them to recognize the conceptual areas where they needed to spend more time.

*Exams.* The exams, also used by each instructor, were meant to be summative measures of performance in the course. The exams were comprehensive in nature (compared to the smaller quizzes) and typically covered a variety of concepts covered in the course.

*Other assessment methods.* Two of the cases, Sheila and Mark, used additional assessment methods, beyond homework, quizzes, and exams to assess student learning. Sheila assigned a group project to her face-to-face students instead of a comprehensive final. Her rationale for a group project was that it fit better with the pace she set in her face-to-face class. Meanwhile, Mark assigned extra credit homework problems to his online students, because he felt they did not get the same opportunity to practice their accounting skills as his face-to-face students, who worked on problems together during their class time.

*My Accounting Lab.* One of the surprising themes that came out of the responses to the first research question from the study participants was their use of the accounting software (known as *My Accounting Lab*) provided by the textbook publishers. The researcher was unaware that use of textbook publisher software was so prevalent among faculty, particularly those who teach courses that are primarily quantitative in nature, such as accounting or math. In many ways, the widespread use of *My Accounting Lab* mandated the usage of the common assessment methods employed by all of the study participants. *My Accounting Lab* provided a test bank of questions for homework problems, quizzes, and exams, which allowed the accounting instructors to easily use these assessment methods. *My Accounting Lab* algorithmically randomized questions from its question bank, so students got different homework problems, quizzes, and exams, but they were still being assessed on specific concepts or comprehensively for an exam. In addition, *My Accounting Lab* automatically graded the homework, quizzes, and exams for instructors, making the often time-consuming task of grading much faster and efficient.

*My Accounting Lab* also provided immediate feedback to students on their progress, which allowed students to quickly receive formative feedback on their homework and quiz assignments. Furthermore, *My Accounting Lab* offered students opportunities to improve in weaker areas by creating a customized learning plan, based on a student's progress in the course. For all of these reasons, it made sense that accounting instructors were using this tool and that a pattern of commonality among the assessment methods used by these instructors emerged in both the face-to-face and

online formats. In fact, many of the instructors commented on how the accounting software had influenced and changed how they taught, because they could focus more on developing the course, facilitating student learning, and helping students problem solve, rather than spending a great deal of time creating homework, quizzes, and tests and the grading of those same items.

**Summary.** This section described the responses from the individual cases to the first research question and then provided a cross-case analysis that highlighted common themes and some discrepancies. Some similarities among the cases included: (a) all of the instructors used the same learning outcomes in their online and face-to-face classes; (b) these learning outcomes were developed by the accounting faculty; (c) all of the instructors used similar assessment methods (homework problems, quizzes, and exams) to assess student learning; and (d) all used the accounting software provided by the textbook publishers to aid in grading and in giving students immediate feedback on their acquisition of the content. Some of the differences that emerged from the individual profiles included: (a) one instructor used a group project in her face-to-face class; and (b) one instructor assigned extra credit problems to his online class.

**Research question 2: Effectiveness of assessment methods.** The second research question considered which assessment methods community college faculty members believed to be most effective in measuring student learning in face-to-face and online course formats. The purpose of this question was to discover if the assessment methods thought to be most effective for measuring student learning

matched with what was actually being used and the rationale for why instructors chose certain assessment methods to measure student learning. Thus, this question was meant to highlight instructors' consistency in using what they believed to be effective assessment methods versus actual methods used. This section will provide responses to the second research question from each case, and then a cross-case analysis of the findings will follow.

*Sheila.* Sheila used the same assessment methods (homework, chapter quizzes, and exams) for her online and face-to-face courses, with one exception. In her face-to-face class, she assigned a group project rather than a final comprehensive exam, while in her online class, she gave the students a comprehensive final instead of the group project. When asked for her rationale for this difference in assessment methods she stated:

The online course only has two major exams. The midterm is for the first five chapters of the text, and the final is comprehensive throughout the whole course. My ground class, my classroom class, the examinations are only on a certain series of chapters. So the first exam is on chapter one through three and then four through six, and the final exam is actually on the last two chapters of the textbook. So I don't give them a comprehensive exam. I have them work on this challenge problem throughout the entire term, and it is very interactive. They work on it in group, they bring their work in, I evaluate it three times during the course. I want them to do what they can and bring it in and that gives us a great platform for discussion on how to correct what they've done. Because I fully expect them, having never done this before, to do it wrong. And I say, "so this is how you learn. You do it and then you come in and we fix it. And so now you've got that modus of learning." Opportunity to say, "oh, I now see how it's supposed to be done," and I feel that that concretizes the learning stronger than a comprehensive exam. And online, I just don't see how I can even achieve that type of interaction through the distance ed. Because when I'm, when they're in the classroom, I can get a hold of them and I can really, you know, assist them and support them. And online I don't, I don't think it would be a possibility.

Primarily, she viewed the group project and the exams in the face-to-face class as the better measures of student learning, as the homework was meant to provide practice, as "learning accounting only comes from practice." In her online class, she used the exams, exclusively, to measure student learning, as she did not assign the project that she used in the face-to-face format in the online format. This difficulty stemmed from not being able to work with the students as interactively on the project in the online format as she could during the face-to-face class sessions.

One of issues that Sheila discussed during our interview included providing students the opportunity to do group work and the ability to support each other as peers because of the complexity of the content and accelerated pace of the course needed to cover all of the course outcomes. For her face-to-face students, she commented:

I really encourage and I actually give the time in the classroom to work together. And that takes a lot of the intimidation and fear out of the activity in that they can sit with fellow students and, and try to struggle, you know, through doing it together - always for the first time. And that seems to be very supportive, and so they actually are getting a little bit more comfortable, and they lose a lot of anxiety by doing the peer work together in the classroom.

For her online students, she stated:

I almost encourage them to more help themselves, each other, than for me to be diving in right away. Because there's always some students that have it, the material mastered, and it's not a problem. And so, they are the leaders of the class, and oftentimes they'll participate and they'll come up with just as good or better answer than I would have come up with, for the question.

Thus, through the group work and discussions in her face-to-face class and the discussions in the online class, she encouraged peer interaction and a way for students to get feedback from each other.

Another issue mentioned by Sheila included the difficulty in being able to assess student learning in formative ways in the online format, because she did not regularly see them or have discussions with them. She was solely dependent on students' reaching out to her to ask questions about the content when they were confused or unclear on material, and she often did not know the extent of students' lack of knowledge of the content until a student received poor results on an exam. For the most part, she relied on the online students' use of *My Accounting Lab* to get formative feedback on their work, since it provided students with several practice opportunities to grasp the material as well as instant feedback on how students were doing in acquiring the content, which helped to alleviate the stress of learning the material.

When asked what kinds of assessment methods Sheila would like to employ in her online class, she discussed wanting to engage students in the type of dialogue that occurs more naturally in the face-to-face format. However, she also acknowledged that it was more difficult, than in other subjects such as an English or communications classes, to engage in dialogue around accounting concepts, because of its quantitative nature. Most of the dialogue in her face-to-face class was around solving the homework problems, which made sense for a basic accounting course in which the primary purpose of the class is to teach accounting basics and not to debate the theoretical concepts of accounting practices. She also mentioned wanting to add a writing component in order to assess students' writing capabilities. However, because the course is already taught at an accelerated pace in order to get through the existing



learning outcomes, she did not feel she could add more assessment methods into the course without overburdening the students.

**Ryan.** Ryan felt the assessment methods he used (homework, quizzes, and exams) were all effective in assessing student learning, especially with the use of *My Accounting Lab*. Ryan discussed his belief that the development of accounting software, such as *My Accounting Lab*, has been the biggest change and improvement he has seen in his years of teaching accounting. Previously, introductory accounting courses were all taught with paper and pencil and students were dependent on instructors providing timely feedback on their work. He stated:

I think this accounting software is superior to anything that I can do in the classroom because students can take practice tests...and each student has an individualized study outline, and they follow that so they can improve when they take the real test. The practice test indicates where they're weak and assignments they need to do to improve their score when they take the graded quiz or exam. That's something that I can't do in the classroom, it's being done through this accounting software. So that's why I really don't change what I do face-to-face. I like to use the same accounting software, because each student will end up with their own study outline and that's just impossible to do that, without using this accounting software.

Additionally, he felt with the new accounting software, students were able to do more work online. It simulated real world accounting work and reduced the amount of homework for accounting students, because the assignments could be done through spreadsheets and other online tools, rather than writing them out by hand. He commented:

We're getting away from paper and pencil homework. It's all being done now on computer with dropdown menus, and I think we're taking a lot of the drudgery out of doing accounting because they don't have to write so much. They basically are keyboarding in the dollar amounts; they still have to do that, but they use dropdown menus that shows [*sic*] a list of maybe 20 account titles,

and they select the correct account title. So it takes hours out of doing their homework.

Furthermore, *My Accounting Lab*, reduced the workload for Ryan, because he no longer had to manually create homework problems, quizzes, and exams and he no longer has had to spend hours grading assignments in an effort to get timely feedback to students. If students got stuck or confused, they could use the "Ask the Instructor" function within the software that allowed the student to e-mail the instructor for help.

Ryan explained:

I get an immediate e-mail, and it alerts me to go in and take a look...so I can respond quickly and maybe try to in my own words explain it better than what the authors of the textbook say. Usually between the two of us, between the textbook authors and myself [*sic*], the students will understand it.

Additionally, Ryan reported that the accounting software had built-in algorithms which could randomize quiz and exam questions; that meant that students in the same class could be tested on similar concepts, but with different questions, to minimize cheating.

As far as other types of possible assessment activity, such as a writing or discussion assignment, Ryan did not use any writing assignments in BA 211, though he did integrate a writing assignment in a higher level accounting course that he taught. He did include online discussion forums for each chapter for both his face-to-face and online classes and encouraged students to use those forums to help one another with homework. He stated:

Every chapter in my online classes have [*sic*] a discussion folder. So, I really encourage student-to-student, or more active student learning. I encourage students to ask questions, and I encourage other students to answer. So it's not

just the professor answering all the questions. I try to get more student involvement and they seem to like that.

**James.** James felt all the assessment methods he used for BA 211 were effective, particularly since the accounting software, *My Accounting Lab*, keeps instructors focused on the course outcomes (as the course outcomes are tied to the textbook and the accounting software is provided by the textbook publisher). Additionally, he reported that the accounting software allows the instructor to create randomized questions from a test bank for quizzes and exams. This minimized student cheating and allowed for more objective assessment of student learning, as it "remove(s) any bias on the part of the teacher," because the tests were automated and scored by the accounting software program and then students were given immediate, albeit canned, feedback on their progress.

One of the concerns addressed by James during our interview included the objective nature of online assessment. As he stated:

you don't get that warm feeling in your heart, that yes, this student really did make an "A" because I can sit there and ask him questions and he's responding correctly. You know, it is really all online, and you just download the scores at the end of the semester. So there's an impersonality in this online assessment. So, that's the negative side of it. The positive side of it is that it really is all online. It is all objective. There's no personal feeling in it at all.

Furthermore, he indicated that it can be difficult helping online students when they are challenged by the material. He commented:

What doesn't happen electronically is, if the system gives the student feedback and the student still doesn't understand the question, the system can't do what a human being can, and that is, okay, this person doesn't understand what I've just said, I've got to think of another way of explaining it to them. The system just has it's canned answers and if the student doesn't understand the canned

answer or the canned feedback, then there's no other alternative, except to e-mail the professor or to call the professor.

Thus, he felt with his face-to-face course, he was better able to see when students might be struggling with concepts and could provide assistance through face-to-face discussions in class. In the online format, he was dependent upon students contacting him, if they needed help grasping the material.

Another issue discussed by James was how the accounting software could further change online teaching of accounting courses. With the amount of automation that the software affords instructors with regard to providing assessments (i.e. homework problems, quizzes, and exams) and the automatic grading of those assessments, the role of the accounting instructor could begin to focus more on class creation and design and being available to offer guidance and assistance at students' point of need. Additionally, he believed the use of the software could possibly reduce class length times. For example, instead of having an 11 or 12 week term, with the use of this software, students may be able to accelerate their learning and acquire the same amount of knowledge and skills within six weeks.

**Andy.** Andy used the same assessment methods (homework, quizzes, and exams) for his online and face-to-face courses and felt that the quizzes and exams were most effective for measuring student learning. He stated that it is more difficult to cheat or copy answers on the quizzes and exams and that these measure more of the conceptual knowledge students needed to acquire. Andy used the accounting software included with the publisher's textbook to administer and score the homework, quizzes, and exams. This software allowed him to algorithmically provide randomized

questions for quizzes and exams, which made it more difficult for students to cheat or copy answers. He liked that the accounting software gave immediate feedback to students: "if they submit a quiz, bingo, it's scored. And there's usually feedback if they get a question wrong, there's usually feedback that says 'No, D was the correct answer and here's why, you can reference page 324 in your textbook.'"

Andy used the discussion board to allow students to work together to solve the homework problems and get feedback from peers. He encouraged this interaction among both his online and face-to-face students so they could get different perspectives by working together. He commented:

I'll also set up a thing on the discussion board; it's called the virtual study hall. Where, not every instructor agrees with me, but I say, if you guys want to work together on the homework, go ahead. Because you'd do that if it was a campus-based class. So, if you have questions, you're stuck and post it on the discussion board, say "can someone help me with part B, I don't get this."

Additionally, Andy felt the homework helped students to build their accounting skills. Building skills then leads to better conceptual understanding of accounting principles because "accounting is a skill-based discipline. You have to learn to do certain things, you have to make journal entries; you have to be able to reconcile a bank account. You have to prepare an income statement and a balance sheet."

Andy felt the accounting software provided by the textbook publishers has greatly changed how accounting is taught. This was particularly true online, where students were often on their own to learn the material and did not have the benefit of being able to have an interactive question and answer dialogue with their instructor in a classroom setting. With the accounting software, students were able to practice

homework problems and get immediate feedback on their results and then practice on problems again, if they did not grasp the concepts the first time through. As he stated:

any time that you can give students, kind of real-time feedback, even though you're not connected to them and they may be doing this, who knows what time of day or night or where geographically they are, I think it enhances their experience and makes them more likely to engage.

Also, since the accounting software allowed students to practice different sets of homework problems for each chapter as needed, he could engage with them when they reached out to him for help. Lastly, he felt the accounting software better prepared students for the workplace, because it was similar to the software they would likely use in a work environment. He commented:

for 40 years now, accounting instruction has been as if accountants still did things with paper on, and pencil. But that isn't the case. You do it through something like Excel, or you do it through an accounting software. Well, the way the online homework is set up is like an accounting software package. They're not writing journal entries by hand on a piece of paper; they're inputting them into a screen, which is the way it really works.

He suggested that, now, the publisher's accounting software lets students practice learning in a similar format to what they would do in the workplace.

Lastly, while he did acknowledge the need for accounting students to develop writing abilities, based on feedback he has gotten from peers in the accounting field, he did not include a writing component within his class. He planned to integrate a writing component into higher level accounting courses he taught, but not at the 200-level, where basic accounting skill acquisition is the primary focus of the course.

**Mark.** While Mark used homework, quizzes, and exams in both his face-to-face and online courses, he added an extra handwritten problem for his face-to-face

students to complete when taking an exam. Mark felt the extra problems "allow me to assess a level of understanding of certain topics to a much greater depth and level, then just superficial learning." In his face-to-face class, he provided students handouts with the correct solutions to the problems on the day the problems were due. During the class session, the students reviewed and corrected their homework, by comparing their answers with the solution handouts. Students were also given the opportunity to ask questions about the solutions during class time. Students then turned in their self-corrected homework problems to Mark so he could record their grade. Thus, students were provided quick feedback on their performance on their homework problems. For quizzes and exams, students received feedback on their performance at the next class meeting, after Mark had graded them.

Mark's rationale for adding extra credit problems in his online course was that he wanted to provide the online students with several opportunities to practice accounting, because accounting requires both skills and knowledge. As he noted "it's being able to do it that's important...accounting being a profession that requires that you not only understand what's going on, but being able to perform it as well." Students who attended his face-to-face class got to practice several problems during the course of his lecture, but the online students did not have this opportunity, which was why he provided the extra credit problems. He added that it took him a great deal of time to correct the extra problems that he assigned to his online students. He indicated that he would not have time to grade extra problems for both his online and

face-to-face classes, which was why he went through problems in his face-to-face class.

As far as Mark's perception of the effectiveness of the assessment methods he used to assess student learning, he felt the quizzes and exams were most effective. The exams allowed him to see if a student had mastered the content enough to apply it effectively in a timed situation. He felt this was what would prepare students for the rigors of the accounting profession, because they would be expected to do their work in a timely, effective manner. In his words:

The reason I feel this way, is they've had opportunities to read the material or they've had opportunities to come to class and hear a lecture and raise questions. They've had opportunities to do homework, they've gotten feedback on the homework. Now we're in a position to me, where... a good exam, not only has to be a learning experience, but it also has to give me feedback in terms of assessing to what level they've mastered or failed to master the material. One of the things that we never tell accounting students, even those who are graduating their senior year, is the accounting profession can be almost brutal in terms of you not only knowing accounting in the real-life, working in a CPA firm or for companies, but also being able to produce, be able to do the work. So by giving timed exams whether they're in a lecture mode or a distance learning mode, I'm able to assess whether they've learned the material to a level for which they don't...they're not going to be wasting time going back, doing research in a textbook or an accountant handbook. Can you, do you understand it sufficiently that you can be productive? Not only in taking the test and being successful at it, but real life.

If a student continually asked for more time on quizzes or exams, that was an indication to Mark that the student was not completely familiar or knowledgeable about the material, which meant they had not met the learning outcomes.

Mark's concluding comments included concerns about overusing discussion forums in online courses and using case studies as problems in Principles of Accounting I courses. In the BA 211 courses, the focus had been on acquiring basic



skills and processes about accounting rather than accounting theory. Thus, discussions as an assessment tool were questionable to Mark, because most of what the students were learning involved right or wrong answers. There was very little debate over what a correct answer might be for a homework problem. With regard to assigning case studies to students at the BA 211 level, he felt that it added too much of a workload burden onto students, as they already had to complete weekly homework problems and chapter quizzes; so, an additional assignment of completing a case study was too much.

*Diane.* While Diane used similar assessment methods to assess student learning in her online and face-to-face classes, she did assign more group work to her face-to-face class. The rationale of this difference was that it was harder to do group assignments in the online class without the opportunity to have a face-to-face class discussion and the ability to monitor the group work. Additionally, she had found that online students did not particularly like group work and were sometimes unwilling to participate in group work in an online class. As she commented:

a lot of the online students do not like the group work, but they have to be doing something, besides just going in and doing their problems. You know, they need some interaction, so you know, that's something that I really feel needs to be there, to assess students' involvement and their other skills, you know, how good they are at communicating. Their leadership skills, a lot of students do not like those group, those online group projects.

Yet, Diane felt it was important that her accounting students had some interaction with each other, in order to develop communication and leadership skills. Therefore, she assigned some group work in her online classes, even if it was not as frequent as in her face-to-face class.

Despite her use of more group work in the face to face class, Diane felt that the scores students achieved on their homework and exams were most telling (for both her online and face-to-face students) as assessment methods to measure student learning. Her response to a question regarding the most effective assessment methods for measuring student learning:

Well, I do think the scores on their homework and exams. I mean that tells me if they're getting it, you know, the communicative ways that I assess, frankly, that's not going to affect their grade. It's more ... let me know if somebody's in trouble or the whole class isn't getting a certain topic. And since accounting's pretty quantitative, you know, it's pretty black and white... it's just like math, the answer's right, or the answer's not right.

However, she felt that she was better able to determine if students were learning in her face-to-face classes, where she could have a face-to-face discussion with students about the homework problems and exams. This face-to-face communication provided a more subjective view for her to assess student acquisition of the content. In her online classes, she was able to monitor their progress in completing the homework problems, it was more difficult to tell if they did not complete the homework because they were lost and confused or simply unwilling to do the homework. As she stated:

Online is really tough...I mean, I go in and I see where people are on their homework assignments, probably after their second and third week, I can go in and see, boy, you know somebody they're like at 50%, or they're missing things. So on the online, it's really more by looking at their progress in a very objective way, by what kind of grades they're getting. How are they doing on their homework assignments; are they completing the assignments? And in online, it's really hard to tell if somebody's absolutely lost, because I don't know until they've completed their portion of their work, or haven't completed some part of the work and they're just not doing very well.

To counter this issue, she had weekly discussion boards to allow students to ask questions and encouraged students to assist each other with questions and through that

exercise, she was able to determine who was "getting it" and who was struggling. In her words:

I do also have weekly discussion areas, so I can tell, who is asking what types of questions. You know if there are some people who are a little bit lost; but the good thing about that is I encourage students to answer other students' questions, so the people who are getting it, they can go in and help students and answer that [*sic*] correctly. So from the discussions I can kind of tell, from participation, you know who's asking a lot of questions, they're probably having some trouble and then the people helping, you know they're kind of the stars, they're the ones who are getting it.

With regard to feedback, Diane provided feedback to her face-to-face class through discussions in class. She would cover topics that emerged as problematic for many students in the homework problems or exams, or she would have one-on-one meetings with students for individual issues. For her online class, she would send messages via e-mail to students quarterly or more often, as needed, to let students know how they were doing with regard to their grade for the course, based on the results of their homework problems or exams. If her online students seemed to be struggling, based on their homework or exam scores, she would recommend using the study plan through *My Accounting Lab* or getting help through online tutoring.

**Effectiveness of assessment methods: Cross case analysis.** This section describes how community college accounting faculty members view the effectiveness of the assessment methods they use in measuring student learning in both the face-to-face and online formats. The purpose of reviewing the responses to the questions relating to perceived effectiveness of assessment methods is to determine patterns of consistency between what methods were being used to assess student learning (addressed in the first research question) against what instructors believed were the

most effective methods, and to identify if any discrepancies arose. Looking for patterns of consistency and any existing discrepancies allows for new questions to form as to the possible challenges, barriers, or limitations that instructors may face when attempting to assess student learning in different learning modalities. The analysis may also suggest ways to provide support to instructors in overcoming these challenges, barriers, or limitations.

Thus, the questions related to the second research question were open-ended in nature; this allowed instructors to respond freely to what they experienced when assessing student learning in both the online and face-to-face environments. Four key themes emerged from their responses: (a) most effective assessment methods, (b) less effective assessment methods, (c) factors that affect assessment of student learning, and (d) other learning needs.

*Most effective assessment methods.* While the faculty all used three of the same assessment methods (homework, quizzes, and exams) in both their online and face-to-face classes, quizzes and exams were considered by all to be the most effective in measuring student learning, regardless of class format. Three factors contributed to this belief including: (a) the timed nature of the assessments, (b) the ability to comprehensively test conceptual knowledge and application of knowledge, and (c) the online testing closely resembled the type of work students would be required to produce in the actual workplace.

*Timed quizzes/exams.* Several faculty members commented on the timed nature of the quizzes and exams as helping them to assess student learning.

Specifically, if a student were able to answer questions in a timely manner, that indicated that he or she had a grasp of the content. Most of the instructors allowed students to use their textbooks or a cheat sheet during exams, because they felt that these resources would only be effective to a student if they already had sufficient knowledge of the content. Without satisfactory knowledge of the content, a student would not be able to complete a quiz or exam within the allotted time.

*Comprehensive testing.* The instructors also discussed how they liked the quizzes and exams, because such quizzes and exams could cover multiple concepts and ideas. Often, the instructors noted that the homework problems only covered a singular concept or were simply skill-building tools rather than tests of conceptual knowledge. The quizzes and exams, on the other hand, included questions that measure conceptual knowledge and application of knowledge. Additionally, with the aid of the accounting software, *My Accounting Lab*, the instructors were able to build tests from question test banks, giving them control over the concepts on which they wanted to test students.

*Workplace replication.* Lastly, all of the accounting faculty mentioned that the quizzes and exams most closely replicated real world accounting work. Thus, faculty felt that students who could successfully complete the exams would likely be well-prepared for the accounting workplace. Many of the accounting faculty commented that accounting instruction, until recently, involved testing students using paper and pencil tests, even though accounting work is predominately done using a computer. Thus, the ability to test students' conceptual knowledge and to have students apply that

knowledge in a timely manner with online quizzes and exams helped the instructors measure students' skills in terms of real world application of knowledge.

*Less effective assessment methods.* While quizzes and tests were consistently considered the most effective assessment methods when measuring student learning, many of the faculty also commented on other assessment methods that they employed. While not the most effective for measuring student learning, these other methods were still useful for engaging students in the learning process. These assessment methods included: (a) homework, (b) group work, and (c) discussions.

*Homework.* All of the instructors assigned homework problems to their online and face-to-face students, because they felt it was an essential part of the learning process, even though they did not consider homework to be a good indicator of student learning of the course outcomes. Primarily, faculty viewed homework as a tool for students to practice and build needed skills for accounting work. Through repeated practice with and exposure to homework problems, students would begin to acquire the skills needed to demonstrate their knowledge of accounting concepts.

*Group work.* Group work was an assessment method that posed a challenge for some of the instructors, particularly in the online course format. Every instructor discussed that, within their face-to-face classes, they used their class time to have students work together in groups to review and solve the assigned homework problems. While all of the instructors encouraged their online students to work in groups to solve the homework problems, not all assigned group homework problems or required students to work in groups to complete the homework problems. In fact,

only one mentioned assigning group projects to both her online and face-to-face class, but even so, she required less group work from her online class. Some of the instructors indicated that, while they attempted to encourage group work both online and face-to-face, they struggled with how to implement group work online and how to monitor online group work. The instructors also commented on how many students in their online classes disliked group work and often would not do it in the online environment, whereas they would do it in the face-to-face classroom environment when an instructor was overseeing the group work.

Yet despite these issues with integrating group work into the curriculum, all of the instructors commented that they felt students gained a great deal of knowledge and were more engaged in the learning process by working together on homework problems. Several mentioned that they felt group work was an important skill for students to develop, because they would need to be comfortable working in groups in the actual work environment. However, since group work was not a stated course learning outcome for any of the BA 211 courses, the instructors did not have a compelling need to formally assess a student's ability to conduct group work. Rather, instructors simply encouraged students to work together with the hope that it would help them to develop group work skills.

*Discussion.* Interestingly, all of the instructors incorporated discussion into their online and face-to-face courses, but they did not use it as a means for assessment of student learning. Discussion, either face-to-face in the classroom or in an online discussion board, was a means for students to communicate questions to the instructor

or to other students. In fact, many instructors used the online discussion board as a means for supporting group work by encouraging students to answer each other's questions.

The primary reason discussion was not used as an assessment method for student learning was, as one instructor commented, that accounting at the BA 211 course level is about learning the basics, and there is not much room for discussion or debate about how an accounting function should be done. Some even questioned the need to require students to participate in the discussion boards online or in the classroom. Certainly, those instructors recognized the importance of discourse, especially in classes that are less quantitative in nature, such as English, Philosophy, or Communication Studies, where multiple perspectives and ways to think about an issue are necessary for understanding. However, for a foundational level accounting class, such as BA 211, the bulk of the content is focused on finding the singular right answer, which means there was not much room for discursive debate. Thus, many preferred to leave discussion as an option for students to ask questions in their BA 211 courses, rather than a forced requirement that students must do to demonstrate their knowledge.

***Factors that affect assessment of student learning.*** Three ideas that emerged with regard to factors that affect assessment of student learning included: (a) a consistent concern with regard to student cheating when assessing student learning, (b) the struggle some of the faculty had in assessing student learning in the online environment due to the inability to have the direct conversations and interactions with



students that occurs in the face-to-face environment, and (c) the perceived need for students to learn skills not specifically noted in the existing learning outcomes, such as communication or leadership skills.

*Student cheating.* All of the instructors referenced concerns over student cheating at some point during their interviews. Many commented on how much they appreciated having a tool like *My Accounting Lab*, which algorithmically generates randomized questions for quizzes and exams, greatly mitigating student cheating. Of course, as one instructor mentioned, it is still possible that an online student could have someone else taking their quiz or exam for him or her, but because of the randomized test questions, it is much more difficult for students within a class to collaborate to share answers with one another on a test.

Each of the instructors encouraged students to form groups to solve the homework problems, either in class or online. Some instructors felt that, by encouraging students to work together, they were supporting collaborative work and hopefully lessening the desire for an individual students to cheat. They reasoned that, because students were being given permission to work together rather than struggle on their own, the student would not choose to copy answers from classmates. However, even though instructors supported group work for homework problems, they still felt it was important that students do individual work for quizzes and exams in order to measure individual student learning. But, instructors could not completely control the conditions of an online quiz or exam to prevent cheating, so they could not always be certain that a student had truly acquired the stated learning outcomes.

*Assessing online students.* A frequently mentioned issue instructors described when talking about assessing student learning was the difficulty they faced in assessing their online students. One instructor referred to it as “not being able to see their eyeballs,” while others talked about how quiet online students can be, because they are less likely to ask questions, especially if discussions are not a course requirement. Thus, some of the faculty felt they were better able to assess their face-to-face students, because they were able to see those students and have conversations with those students on a regular basis. Yet, every instructor indicated they liked the quizzes and exams as effective assessment methods, because the quizzes and exams were made up of randomized questions, which allowed a more objective measurement of knowledge. So, there appeared to be concern over the validity and effectiveness of the assessment methods used to measure learning for the online students. While all of the instructors valued having an objective tools (i.e. quizzes and exams) for assessing student learning, some of them seemed to feel better about those objective assessment methods when they could reinforce and confirm student learning in a subjective way, such as being able to see the students and have conversations with them about the content.

*Other learning needs.* In discussing effective assessment methods, there were other learning outcomes that instructors identified as important skills for those studying accounting. The most frequently mentioned were writing abilities and soft skills, such as communication, leadership, and group work. Yet, none of these skills were specified in the stated learning outcomes for any of the BA 211 courses that were

taught by the instructors interviewed. Many of the instructors commented that the BA 211 course already contained numerous learning outcomes and that those outcomes forced instructors to use an accelerated pace just to get through all of the needed materials. So, while some expressed concern over students needing these skills, there was very little motivation to add more content or assessment into the course, due to the workload burden that would be placed on both the students and the instructors.

**Summary.** This section discussed the responses from the individual cases to the second research question and then provided a cross-case analysis that focused on key themes that emerged across all of the cases. These key themes included (a) effective assessment methods, (b) less effective assessment methods, (c) factors affecting assessment of student learning, and (d) other learning needs. All of the instructors interviewed used homework, quizzes, and exams to assess student learning, but all instructors found quizzes and exams to be most effective in measuring student learning because of the (a) timed nature of the quizzes and exams, (b) ability to test conceptual and application of knowledge, and (c) ability of the quizzes and exams to replicate the real world environment. Instructors did use other assessment methods, such as homework, group work, and discussions, to varying degrees within their online and face-to-face courses, but their level of confidence in measuring student learning with these assessments was not as strong. The faculty also mentioned two issues that affected their ability to assess student learning: (a) student cheating in either format and (b) being able to connect with online students. Lastly, the instructors mentioned other learning needs for students studying accounting, such as

writing and soft skills (e.g. communication, leadership), but they were unsure how to implement these components into the existing course in a way that they could measure effectively, or how to justify adding more outcomes to a course already packed with content.

### **Chapter Summary**

This chapter presented the findings of the research study. The chapter began with each case study profile, including study participant's teaching experience, educational credentials, and access to technical support and training. The six Oregon community college faculty members interviewed for this study had a range of teaching experience from five years to over 30. Both part-time and full-time faculty were represented in this group, and each had taught the same accounting course, BA 211 Principles of Accounting I in the online and face-to-face format. Each faculty member worked at institutions which provided technical support for online instructors and access to Quality Matters training.

Next, the two research questions were addressed, first with the responses of each case study to the research questions, followed by a cross-case analysis for each research question. The first research question was focused on the methods used by the study participants to assess student learning. Part of the questions asked in relation to the first research question involved the use of student learning outcomes and textbook. Each instructor interviewed used the same learning outcomes for both their face-to-face and online classes, as learning outcomes were typically developed at each educational institution by the accounting faculty and were required to be used by all

faculty members teaching accounting. Furthermore, each study participant used the same textbook in both learning formats. The most common assessment methods used by this group of faculty members included: (a) homework problems, (b) quizzes, and (c) mid-term and final exams. Only two of the faculty members used other assessments, such as a group project and extra credit homework to assess student learning.

One surprising topic that emerged from the responses to the first research question was the prevalent use among the faculty interviewed of the accounting software, *My Accounting Lab*. This software, provided by the publishers of the accounting textbook used by these instructors, heavily influenced the assessment methods chosen by instructors. *My Accounting Lab* provided randomized quizzes and tests, as well as homework problems for faculty. In addition, the software graded the assessments and gave feedback to students immediately. As a result, the instructors were able to spend less time on creating and grading tests and homework problems and more time helping students at their point of need in the learning process.

The second research question addressed the effectiveness of the assessment methods used, as perceived by the faculty interviewed for this study. The study participants all felt that the timed quizzes and exams were the most effective assessments for evaluating student learning, especially in measuring conceptual knowledge in both the online and face-to-face environments. Many of the faculty felt that the quizzes and exams allowed them to comprehensively test student knowledge.

Additionally, some instructors commented that the quizzes and exams, taken through *My Accounting Lab*, replicated workplace expectations.

Other assessment methods discussed included homework problems, group work, and discussion. All of the study participants viewed homework problems as an excellent skill-building activity but not an effective assessment of student learning. Several faculty members mentioned their encouragement to students to work in groups in both their face-to-face and online courses, but they found that online students often resisted or were unwilling to do group work. In the face-to-face environment, students were more willing to do group work, as it was often monitored by the instructor during class time. Finally, discussion was encouraged both in the face-to-face and online courses, but many of the study participants did not include discussion activity as a required assessment. Due to the quantitative nature of the course content, in which students must determine the correct answer to problems and follow specific procedures, there was very little opportunity for discursive discussions.

Some other topics that arose from the second research question revolved around factors that affect assessment of student learning. These factors included: (a) student cheating, (b) assessment of online students, and (c) other learning needs. Many of the instructors in this study was concerned with student cheating, especially in the online courses. However, many felt that using *My Accounting Lab* helped to mitigate this issue due to the randomization of the test questions for the quizzes and exams. Other study participants discussed their difficulty in assessing online students, because they were not able to see them and have conversations with them, as they

could with face-to-face students. Yet, despite these concerns, the faculty members indicated they felt the assessments they used (i.e. quizzes and exams) were objective, effective assessments. Lastly, some of the instructors mentioned the need for students to acquire other skills not addressed in the existing learning outcomes for the BA 211 course. These skills included: (a) communication, (b) ability to work within a team, and (c) leadership abilities. While these instructors attempted to integrate some of these skills into their learning activities (such as encouraging students to work in groups on homework problems), many found it difficult to enforce or measure these skills, since they were not included in the student learning outcomes for the course.

Several topics emerged from this study. This chapter presented the results of the study's research questions through the lens of each study participant, then followed by a cross-case comparison. A thorough discussion of the results will be examined in chapter five.

## Chapter 5: Discussion

This multiple case study was undertaken to explore the assessment methods used by community college faculty who teach the same course in both the online and face-to-face formats. The purpose of this research study was to determine if any differences between the two formats emerged in the assessment methods used by the faculty and to ascertain how their assessment practices were similar in those two formats. Furthermore, this study asked community college faculty about their perceptions of the effectiveness of the assessment methods they used in each format. This chapter contains the following sections: (a) a discussion of the findings for each of the research questions, as compared to current literature, (b) limitations of the study, (c) questions for practice, and (d) topics for future study.

This study focused on community college faculty member who taught the same course in the online and face-to-face formats in an effort to explore how assessment of student learning was currently being done in these two environments. Online education has become a strategic component of higher education, as schools strive to find ways to increase access to education by leveraging new technologies to counter budgetary constraints that limit the ability to build more classroom and campus spaces. Indeed, while "the rate of growth of online enrollments has tempered somewhat...[it] continues to be far in excess of the rate for the total higher education student population" (Allen & Seaman, 2011, p. 4). Community colleges, in particular, have embraced online education, as "campuses reported an 8.2 percent increase for distance education enrollments—substantially higher than the overall increase in national



campus enrollments" (Instructional Technology Council, 2012, p. 7). Yet, alongside this exceptional growth in online education, is the constant call for accountability to ensure that our students are achieving learning outcomes that will allow them to be successful in the work environment (National Institute for Learning Outcomes Assessment, 2009). Thus, in an attempt to give voice to those who deal with these pressures and challenges every day, this study reviewed two elements: (a) online education within community colleges, and (b) assessment methods from the faculty perspective.

### **Discussion of Results**

This section discusses the findings for each of the research questions within the context of the literature review in Chapter Two and other relevant literature. The two research questions for this study were: (a) How do community college faculty who teach the same course in both face-to-face and online formats assess student learning; and what similarities and differences emerge? and (b) What methods do community college faculty perceive to be most effective in assessing student learning in online courses compared to face-to-face courses and why?

The literature review conducted in Chapter Two considered two primary aspects of this study, assessment and online teaching. The first part of the literature review concentrated on defining assessment, the historical aspects of assessment, and the reasons for conducting assessment (improvement or accountability). The second part of the literature review discussed assessment within the online learning environment, specifically looking at three things: (a) designing assessment for online

courses, (b) face-to-face and online course comparisons, and (c) faculty assessment methods of student learning. This study focused on the improvement aspect of assessment by looking at the assessment methods faculty use to determine student learning and providing feedback on learning effectiveness to students. Furthermore, this study provided a direct comparison of face-to-face and online courses and considered the assessment methods of faculty in both learning environments. The findings of this study were mostly supported by the findings of the literature review.

The researcher for this multiple case study followed a pragmatic philosophical approach when designing and developing the study. Study participants were chosen from a convenience sample, and data were collected through telephone interviews. Each interview followed an interview protocol, which included open-ended questions and the possibility for follow-up questions. When appropriate, and as dictated by the researcher's pragmatic perspective, direct quotes from the participants were used to describe the participants' real world experiences and practices.

**Research Question 1:** How do community college faculty who teach the same course in both face-to-face and online formats assess student learning; and what similarities and differences emerge?

***Common assessment methods.*** With two minor differences, all of the study participants used the same assessment methods (homework problems, quizzes, and exams) to assess student learning in both the face-to-face and online formats. These common assessment practices were supported by the literature, in that instructors used both formative (homework and quizzes) and summative (exams) assessment practices

to gauge student learning (Arend, 2007; Kirkwood & Price, 2008). Maki (2004) and Suskie (2009) discussed the need for having both formative and summative assessments built into the learning process in order to effectively measure student acquisition of learning outcomes.

The two differences in the assessment methods used by the study participants were (a) the inclusion of a group project for the face-to-face class (instead of a comprehensive final exam that was given to the online class), and (b) the use of extra credit homework problems for online students. However, the use of these assessment methods were mentioned in the existing literature as frequently used assessment methods by faculty. Specifically, multiple choice tests, group projects, and problem solving activities, such as homework problems were all found to be common effective assessment methods in the online learning environment among community college faculty in Yates's (2005) study.

Thus, it appears that the community college faculty interviewed for this study used assessment methods commonly employed by faculty in higher education. While there were two notable differences in two of the faculty member's strategies, their practices were still consistent with assessment techniques used by faculty as discussed in the literature.

***Common learning outcomes and textbooks.*** All of the instructors used the same learning outcomes and textbooks for both course formats, which allowed them to assess student learning in an objective way. Both Reuter (2009) and Kirtman (2009) used the same learning outcomes and textbooks when comparing student grades in the

same courses that were offered in face-to-face and online formats. Thus, it is reasonable to expect instructors to use the same learning outcomes and textbooks for the same course, regardless of modality, in order to ensure consistency in learning content.

***My Accounting Lab.*** The surprising finding with regard to the assessment methods used most frequently by the faculty members interviewed for this study was that these assessment methods (homework problems, quizzes, and exams) were chosen primarily because they were available through the *My Accounting Lab* software. *My Accounting Lab*, which is accounting software provided by the textbook publishers, was used in varying degrees by the study participants. Thus, the use of this accounting software, for the most part, dictated the type of assessment methods used in both formats (online and face-to-face) of the course. Faculty use of such software was not mentioned in the literature reviewed.

At first, allowing a technology software program to determine the assessment methods used within a course seemed contradictory to the literature reviewed. That literature encouraged faculty to carefully consider assessment methods during the instructional design process for online courses in order to move students towards acquisition of the learning outcomes (Sigala, 2005) and to choose methods that would allow for authentic evaluation of student learning (Maki, 2004). However, the study participants believed *My Accounting Lab* provided excellent assessments for students, in both the online and face-to-face formats, because it could provide immediate formative feedback when students finished homework and quizzes. Rust (2002) and

Johnson (2008) discussed the importance of prompt feedback within formative assessment in order to help student improve, and Beebe et al. (2009) described the expectation of students to receive immediate feedback in the online environment.

Additionally, it could be argued that, since this accounting software was developed by textbook publishers to be used in an online environment, consideration was given during the design of the software to develop assessments appropriate for online learners. Indeed, one faculty member noted that, by using the assessments provided by *My Accounting Lab*, he could spend more time designing his online course and deciding when to implement assessments; thus, he spent less time on developing homework, quizzes, and tests that would provide objective assessments. *My Accounting Lab*, by providing ready-made objective assessments, appeared to allow faculty more time to focus on instructional design of online courses, consideration of appropriate pacing and timing of content to meet learning outcomes and scheduling assessments of those outcomes. Furthermore, due to the nature of the types of assessments it provides, students are able to get immediate formative feedback on their learning progress, which is strongly supported in literature on learning pedagogy (Johnson, 2008; Maki, 2004; Rust, 2002; Suskie, 2009).

***Faculty support and training.*** A related finding that emerged from the discussion of the assessment methods was that each study participant was provided with technical support and training. This support and training consisted of the use of course management technology, the accounting software, and Quality Matters training for developing and designing online courses. The instructors felt this training helped

them to use their learning management systems and accounting software effectively. The literature suggested that faculty technical support and training is essential in order to develop effective assessments in the online environment (Bower & Hardy, 2004; Cejda, 2010; Friedlander & Serban, 2004; Santilli & Beck, 2005). Furthermore, the use of Quality Matters rubrics, a faculty-driven peer-reviewed process for developing online courses based on eight best practice standards for online teaching, is suggested as a useful training tool for online instructors (Aman, 2009; Smith, 2010).

Yet, while each study participant was given training opportunities in how to use technology in the online learning environment and how to effectively design instruction and assessments through Quality Matters training, they still faced challenges in assessing student learning in the online environment. This may indicate the need for follow up training sessions for faculty or the need for structured support, such as faculty mentors. The need to provide faculty support through the instructional process, in addition to the training process (Terantino & Agbehonou, 2012) and developing a peer mentorship process for instructors who teach online (Batts, Pagliari, Mallett, & McFadden, 2010) were supported in current literature. Wright (2010) also argued that, while exposing online instructors to Quality Matters training is valuable instruction, faculty also need sustained support, such as faculty mentors, to help instructors build confidence in their online teaching skills.

**Summary.** The first research question (how do community college faculty who teach the same course in both face-to-face and online formats assess student learning and what similarities and differences emerge?) of this research study was

meant to look at the similarities and differences that exist in the assessment methods faculty use when measuring student learning for the same course offered in the online and face-to-face format. From the findings, the researcher discovered that the instructors interviewed used similar assessment methods (homework, quizzes, and exams) with only slight differences and that all of the assessment methods used are common assessments among online faculty, based on a review of literature. Furthermore, the study participants used the same learning outcomes and textbooks for both the online and face-to-face courses, which were also supported by the literature.

The surprising finding was the use of *My Accounting Lab*, which is an accounting software provided by the textbook publishers, by the faculty interviewed and its role in influencing the assessment methods used by the faculty. While this particular issue was not directly addressed within the literature, there was support in the literature for the use of the types of assessment methods provided by *My Accounting Lab* and for the formative feedback that it provides. Lastly, another issue that arose was the technology and instructional design training that the study participants received and the way in which it can support what assessments are chosen by faculty. The literature strongly advocated for faculty development for online instruction.

**Research Question 2:** What methods do community college faculty perceive to be most effective in assessing student learning in online courses compared to face-to-face courses and why?

*Effective assessment.* For this question, the study participants unanimously agreed that the timed quizzes and exams were the most effective in assessing student learning, especially for assessing conceptual knowledge. This was supported by studies within the literature that found timed quizzes and multiple choice tests as effective assessment methods among faculty (Gaytan & McEwen, 2007; Yates, 2005). Braun and Sellers (2012) also discussed how quizzes can enhance the acquisition of conceptual knowledge. Interestingly, Arend's (2007) study found that many faculty viewed midterm and final exams as assessments that decreased critical thinking skills, though they were popular assessment methods among faculty.

Furthermore, many of the instructors felt the timed nature of the quizzes and exams, as well as the need for students to complete the tests online, mimicked the workplace environment, where students would be expected to do their work in a timely manner using computer software. While the intent of this study was to focus on assessment methods from an improvement standpoint, the particular issue of workplace readiness was supported by literature that discussed assessment for accountability purposes (Frye, 1999). Student learning and assessment of student learning was typically not meant to be purely for improvement but to prepare students for workplace realities which recognizes the need for assessment for accountability purposes. However, while authentic assessments that evaluate workplace readiness are essential, some argued that student performance on tests are not good indicators of workplace performance (Reynolds, 2009). So, this finding presented an interesting



juxtaposition between the instructor's perception of timed test as effective assessments in preparing students for the workplace and what the literature suggested.

*Assessments for other learning purposes.* There were several assessment methods that the study participants used beyond those for assessing student learning. These assessments included: (a) homework problems, (b) group work and (c) discussions. There was broad consensus that homework problems, while not the most effective assessment method, were still useful, because they enabled students to develop the skills that they needed to develop and provided a way for students to get formative feedback on their learning progress. Certainly, the use of formative assessments was supported by the literature, especially in helping students to move from surface learning to deep learning (Johnson, 2008; Kirkwood & Price, 2008).

Group work posed a conundrum for the study participants, particularly in the online environment. While each participant recognized the importance of collaborative work and group skills, many struggled with how to implement group work effectively in their online courses. Swan, Shen, and Hiltz (2006) discussed assessing collaborative learning in online environments and the challenge for faculty to do so successfully, considering the complex nature of group work and the way in which group work is or is not addressed in learning outcomes. All of the instructors used group work during their face-to-face class sessions, where they would break students into groups to have them practice with homework problems or encourage them to do so outside of class. Yet, in the online environment, students were also encouraged to work together to solve homework problems or answer each other's

questions in the discussion forums, but instructors found that students were not as eager to collaborate with each other, unless required to do so. Even then, some instructors found some online students would not do group work.

One of the most interesting ideas that came from the interviews was the participants' reactions to discussion in their classes. All of the instructors used discussion in both their face-to-face and online classes, but using discussion as a required activity was not consistent among instructors in the online environment. Some felt the need to require discussion in their online courses in an effort to build a collegial online environment, while others did not feel it was necessary to require discussion participation but rather to make it voluntary. San Millan Maurino, Federman, and Greenwald (2007) studied online discussions and found several aspects that must be considered for effective use: (a) clear goals must be stated for the use of discussions; (b) class size must be considered; (c) discussions often fail to elicit deep learning; and (d) discussions can be useful for reinforcement of content or for social development. Some of the resistance to requiring content discussions either in the face-to-face or online formats was due to the subject matter. At the 200-level of accounting, there was very little room for debate of perspectives, because it was a very quantitative, skill-based course with distinct processes that must be followed.

Another issue that arose with regard to assessment and student learning in the BA 211 course was the lack of a writing component or other soft skills, such as group interaction, leadership, or communication. Some of the instructors acknowledged the need for these skills within the accounting profession, but they admitted that these

skills were not addressed within the course's learning outcomes; furthermore, in their opinions, there was little room for additional content or learning activities to be added into a content-heavy course.

*Assessing online students.* Two ideas emerged from study participants responses to assessment of online students: (a) concern over student cheating, and (b) difficulty in truly being able to measure student learning in the online courses.

Student cheating was a common worry among the faculty interviewed, particularly in the online environment where there was little control over test taking. Liang and Creasy (2004) addressed this issue by suggesting that online assessments should be created to promote critical thinking skills and should have real world applications. Maki (2004) would call this an authentic assessment. This concern over student cheating was an interesting conundrum for this group of instructors. On the one hand, they liked the objective nature of the tests, because the tests mitigated subjective measurement of student's knowledge and because completion of the timed tests replicated real world accounting work, which would support Liang and Creasy and Maki's suggestions. Yet, the faculty members still did not trust the assessments fully as true measurements of the online students.

Some of the instructors talked about the challenge that they face in truly knowing if their online students are learning and understanding the material. These issues stemmed from the instructor's inability to see the students and have conversations and discussions with the students in a face-to-face setting. Rather, the instructors had to rely on the results of the assessments (quizzes and exams) or on

questions from students to indicate whether students were acquiring the needed conceptual knowledge stated in the learning outcomes. Beebe et al. (2009) discussed this same issue in their study of assessment practices in the online environment. Beebe et al.'s suggestion for counteracting this issue was to consider the assessment practices and determine if the assessment was accurately measuring process over product. From the participants of this study who expressed this concern, two of them discussed wanting to have better ways to connect with online students, but they were uncertain how to achieve that without overloading students or themselves with more work.

**Summary.** The second research question was: what methods do community college faculty perceive to be most effective in assessing student learning in online courses compared to face-to-face courses and why? The question was meant to determine if faculty are using the assessment methods that they feel are most effective for measuring student learning in the online and face-to-face environments. Predominately, the study participants felt they were using effective assessments with the timed quizzes and exams, especially since they allowed measurement of conceptual knowledge and because they replicated real world accounting work that would need to be done online and in a timely manner. While a review of literature supported authentic assessments that allow students to practice real world actions, there was some debate on whether performance on tests truly equated to real world performance.

Other ideas that emerged from this question revolved around assessments that build skill over conceptual knowledge (e.g. homework problems), difficulty in monitoring group work in the online environment, the use of discussions, student cheating, and the struggle with assessing student learning online. Each of these concepts was supported by relevant literature.

### **Limitations of the Study and Suggestions for Future Research**

The intent of this research study was to explore how community college faculty who teach the same course in the online and face-to-face formats assess student learning. Literature was reviewed and faculty were interviewed, and an analysis was then conducted by the researcher following standard research protocols. However, as with any research study, there were limitations to this study that the researcher wishes to disclose here for the possibility of future research:

1. This study focused on a specific accounting course taught by accounting faculty, so findings may not be applicable to other subject disciplines. Additional research in other subject areas may be helpful in confirming these results and in revealing different insights.
2. This study solely considered the perceptions of faculty members. Additional research could include the viewpoint of students and administrators and their perceptions of effective assessment methods in the online and face-to-face learning environments.
3. The study focused on faculty perceptions of effectiveness of various assessment methods. A future study might examine the effects of various

assessments on students' actual knowledge, skills, and cognitive development.

4. The study examined the perceptions of community college faculty. Future research might examine the perceptions and experiences of faculty, students, and administrators at different types of higher education institutions and determine whether similar results emerge.
5. This study had a small number of cases which greatly reduces the application of the results on a broader scale. A similar study with more study participants or with study participants from another region of the country could be useful in expanding this discussion of effective assessments in the online environment.
6. The study used a qualitative case study method. These results could be used to develop a survey that could be distributed to a random sampling of faculty nationwide. Such a survey may confirm or refute the reported results.
7. The study revealed the prevalent use of publisher's software by accounting faculty, which allowed them to have more time for instructional design and one-on-one tutorial help with students. Furthermore, from a student perspective, this software provides immediate feedback on performance, which is a beneficial aspect of learning. Thus, there are many insights that can come from studying both faculty and students who are using this

software in order to find the benefits that can translate to best practices for teaching and learning.

8. The study indicated the importance of peer support and mentoring for faculty. A future study could examine successful peer support and mentoring programs for faculty teaching and training, particularly for those faculty teaching in both the online and face-to-face formats. Such a study may prove useful in providing models for schools to implement. Also, studies that focus on faculty experiences, both successes and challenges, that they have faced in their building the technological expertise and skills, would be useful in starting conversations with faculty who may be hesitant or resistant to updating their skills.
9. The study was a comparison of accounting courses, which falls under the career and technical education (CTE) pathway within a community college. Another study could compare assessment methods of student learning in General Education courses with CTE courses, in order to determine what similarities and differences may exist in these two different learning pathways and how to leverage that knowledge into developing student-centered learning activities and assessment.
10. This study focused on community college faculty and the assessment methods of student learning that they use as individual faculty members within their own courses. With the use of *My Accounting Lab*, this study's participants highlighted a shift in a faculty member's role away from

developing assessments and toward instructional design and providing one-on-one feedback to students at their point of need. Western Governor's University (WGU), an accredited online university, uses a unique model for student learning and assessment. At WGU, faculty have one of three roles with regard to student learning: (a) Student Mentor; (b) Course Mentor and; (c) Program Faculty. The Student Mentors support students throughout the learning process, the Course Mentors act as subject matter experts, and the Program Faculty develop courses and assessment of student learning (Western Governor University, 2012). Thus, instead of a single faculty being all of these roles for students within the classes they teach, as the community college faculty in this study did, the WGU faculty roles are divided into these three separate areas, in order to provide student learning support. A future study could compare the instructional roles of community college faculty with WGU's faculty roles in order to determine if such a model would be beneficial to use within a community college.

11. One of the themes that emerged from this study was the need for students to develop soft skills, such as the ability to collaborate, to lead, and to communicate, in order to be successful in the workplace. Additional research could compare courses that use more project work to assess student learning to courses that are primarily exam-based, as this study was. Such a study might find similarities and differences in student



learning outcomes the ability for students to acquire soft skills, through the use of different types of assessment methods.

12. This study demonstrated the ubiquitous use of technology and media as part of the instructional process. Yet, some of the faculty expressed concerns about assessing online students due to the inability to see students participate in the learning process in a face-to-face environment. A future study could consider how instructor's experience with the use of technology and media affects their perception of student learning. This phenomenon, known as media richness theory (Sun & Cheng, 2007), may elicit a better understanding of why some faculty feel assessment of student learning in the face-to-face classroom is more authentic than in an online course.

### **Questions for Practice**

The purpose of this study was to find out how community college faculty are assessing student learning when teaching the same class in the face-to-face and online learning formats, as well as to discover their perceptions about the effectiveness of the assessment methods they use to measure student learning. The researcher for this study was interested in learning what similarities and differences existed between the assessment methods used in the online versus face-to-face formats and if the assessment methods used were felt to be effective by the instructors using them. From this study, the researcher hoped to find ways to develop better faculty training or best

practices for online instruction. Thus, based on the results of this study, the following section outlines some questions for practice.

**Use of publisher software.** The development of online software by publishing companies that assists instructors with question banks for tests, grading, and other instructional activities appears to have had an impact on teaching, particularly among this group of faculty members. As publishers continue to develop these tools, there may be a shift in the role of instructors in both the online and face-to-face environments, particularly in how their time is spent. Instructors may be able to focus more on instructional design of courses and one-on-one tutoring help than on developing and grading assessments. Yet, despite the benefits, there are economic implications that go along with the use of publisher software. As publishers spend time and money on the development of this software, they will look for a return on their investment in the form of textbook and companion software prices, which will be shouldered by students. As education costs for students continue to rise in the form of tuition and fee increases, how much of an additional financial burden will the required purchase of publisher software be to students? As educators, how do we ensure minimization of costs of the publisher software, while maximizing its benefits?

From a social perspective, how involved are educators in the current development process of textbooks and companion software? How can we, as educators, ensure that the content and assessments being built are appropriate? Also, how do we ensure feedback provided by software is as effective as feedback from an instructor?

**Authentic assessment in the online environment.** As new technologies are leveraged in the online learning environment, there may be a need to pay careful attention to finding and using authentic assessments that measure students' ability to follow and successfully complete a process as well as produce an end product. Currently, in the online environment, it is difficult for instructors to know whether students use a process correctly to get to an end product. Several participants within this study commented on their difficulty in assessing online students despite their use of the same objective assessments (quizzes and exams) for both the online and face-to-face students. The study participants found they trusted the assessment more in the face-to-face environment, when they could also observe students working on homework problems with peers. Thus, as educators, how do we ensure our assessments are authentic in both the face-to-face and online environments? How might we design assessments that allow students to gain procedural knowledge and conceptual knowledge?

**Development of learning outcomes to measure beyond content acquisition.** Authentic assessments are important, because they allow a student to demonstrate conceptual knowledge and other related skills essential in the real world environment. However, while the need for developing authentic assessment is apparent, tied to that idea is the need for learning outcomes that go beyond content acquisition. Many of the faculty interviewed for this study recognized the need for their students to attain skills beyond those addressed in the course outcomes. Some of the skills mentioned by the study participants included writing abilities, working in teams, and leadership

qualities. Each of these skills were believed, by the instructors, to be essential for students to succeed in the accounting field. Yet, for faculty to feel compelled or motivated to develop such authentic assessments, there needs to be companion learning outcomes that indicate to both instructor and student the importance of having skills beyond content knowledge, such as communication, group work, leadership, and others. Definitely, these skills can be very difficult to assess, even with clearly stated learning outcomes that indicate the need to gain these skills. However, if educators want students to develop these skills for the workplace and for personal success, will there need to be a shift toward developing measurable learning outcomes for these skills as well as subsequent development of authentic assessments?

**Need for faculty development.** This study explored aspects of assessment from a teaching perspective, and one of the foundational pieces of assessment is that it must include regular feedback and be a continuous process in order for learning to occur. This concept also applies to those who are providing the instruction to students, as they are learners as well. Thus, an important theme that emerged from this study is the continuous need for teaching and technical support for faculty. From this study, it appeared that community college institutions had recognized this need and were making efforts to provide this support to faculty. A question for practitioners would focus on methods for improving that faculty support. How can institutions further develop and sustain peer mentors as one way to accomplish this support? To what extent is there a need for constant encouragement to instructors, by administration, to continue to develop their skills? Just as courses need to be updated

to meet current workplace demands, so does the technology knowledge of faculty members need to be updated regularly. Practitioners need to consider the most effective methods for providing that technology knowledge. What motivations or workplace conditions would drive faculty to continuously update their technological skills for application within the instructional environment?

### **Chapter Summary**

This chapter provided a discussion of the results found through this study, as well as the limitations of the study, future topics for study, and questions for practice. In the discussion of the results, the findings of the study were supported by relevant literature and from a literature review. The limitations of the study included: (a) focus on accounting faculty teaching a specific accounting course, (b) consideration of only the faculty perspective of the effectiveness of various assessments, (c) examination of community college faculty perceptions, (d) use of a qualitative case study method, and (e) the small number of participants. Some suggestions for further study included: (a) examining other subject area faculty, beyond the accounting field, (b) exploring the perceptions of students or college administrators with regard to effectiveness of assessments, (c) measuring the effects of various assessments on students actual knowledge versus perceived knowledge, (d) exploring the use of instructional software, (e) examining successful peer support and mentoring for faculty, (f) comparing the assessment methods of student learning used in career and technical education (CTE) courses with general education courses, (g) evaluating Western Governor's University's model for instructional roles against community college

faculty instructional roles (h) comparing the assessment methods in courses that require project work to courses that use individual skill-based activities, and (i) studying the effects of media richness theory on instructor's perception of student learning. The questions for practice included: (a) exploring the use of publisher software in online courses, (b) finding ways to develop authentic assessment in the online learning environment, (c) developing learning outcomes that go beyond content acquisition, and (d) continuing need to provide faculty development.

## **Chapter 6: Conclusion**

The purpose of this study was to discover how community college faculty assess student learning when teaching the same course in the face-to-face and online learning environments. Through this study, the researcher hoped to gain insight into similarities and differences that exist in both formats and to ascertain faculty perceptions of the effectiveness of their assessment methods. This chapter offers acknowledgement of the research participants and the researcher's final comments and reflections of this study.

### **Acknowledgement of Participants**

Research studies are only possible if data can be collected. For this particular study, data collection required the participation of several community college faculty members from different Oregon community colleges. As the researcher, I sent out a broad request to accounting faculty in order to identify possible participants and was pleased by the willing responses of the participants and other accounting faculty, despite their busy teaching schedules. Additionally, the collegiality among this group of faculty was also heartening. Both those who were able to participate and those who were not were often willing to contact other colleagues to participate in this study.

The knowledge and dedication of the participants in this study was readily apparent during our interviews. Their commitment to students, teaching, and the accounting profession was consistently demonstrated through their descriptions and responses to my questions. I truly appreciate their willingness to participate in this study, and I thank them for allowing me to learn from their experiences.

### **Personal Reflection**

I undertook this research study in an effort to learn more about two things that I value highly, teaching and assessment. Due to my pragmatic perspective, I chose to look specifically at where these two areas collide in the online learning environment because of my own interest in teaching and assessment online. Basically, I wanted to see if what is discussed in the theoretical world (literature) matched with the real world (in the online classroom). In many ways I found that, yes indeed, theoretical constructs are being applied to real world situations. Measurable learning outcomes are being used in courses, and authentic assessments are being used to measure student learning against those outcomes. Instructors do consider how effective assessments are in measuring student learning and strive to ensure students are learning the content the need to be successful in the workplace.

One of the most astonishing things I learned from this study was how much influence a publisher's software has on the nature of the teaching environment. As noted by many of the study participants, the use of publisher software has drastically changed how they teach, and in tandem, what students learn. While the use of this software has many benefits in reducing teaching workload, particularly grading, and in offering students immediate feedback, I am also cautious of how much, we, as educators, should willingly follow what has been provided to us. Is such software a true educational innovation or a newly styled technological Trojan horse? As technology and economics continue to collide in the educational arena, forcing educators to do more with less and to leverage technologies in new ways, this study



has helped me to realize the importance and necessity for asking questions about quality, effectiveness, and usefulness. Ultimately, my interests in teaching and assessment revolve around my belief in student-centered learning environments and how we can enable them. Thus, while I am optimistic about the opportunities that could emerge, I am also mindful of keeping students front and center.

Yet, with my pragmatic eyes, it also appears that much of what happens when theory is applied to practice in the online environment is largely dependent upon the individual needs and knowledge of the instructor. Teachers will be successful in creating a student-centered learning environment, if they are given the tools and resources to provide it. So, I am also mindful of the need to continue to advocate and support faculty development and learning organizations. It has been over two decades since Peter Senge (1990) first wrote about learning organizations in his book, *The Fifth Discipline* and over a dozen years since Terry O'Banion's (1997) widely read book, *A Learning College for the 21st Century*. Higher education still seems to be grappling with how to best emulate the learning models provided by these authors. I think we are getting there, step by step and, in true assessment mindset, we continue to seek feedback and improve.

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APPENDIX

## **Appendix A**

The following interview questions will be used during the interviews of the study participants.

### **Demographic/Characteristic Information**

- What educational degrees and other credentials (if any) do you hold?
- How long have you been a teacher?
- How long have you been teaching at the community college level?
- What courses have you taught during your teaching experience at the community college level?
- At what community college(s) do you currently teach?
- What is your status at the college (i.e. adjunct, full-time, tenured, administrative)?
- Do you have experience teaching at other academic institutions (e.g. high school, four-year institutions, graduate school)? If yes, what kind of courses have you taught in those environments?
- How long have you taught online courses?
- What additional training or professional development (if any) have you received, beyond your educational credentials, with regard to teaching and assessment?

- Have you received any training or professional development specifically for online teaching and assessment?

### **Research Questions**

1) How do community college faculty members who teach the same course in both face-to-face and online formats assess student learning and what similarities and differences emerge?

- What are the specific course(s) you currently teach in both online and face-to-face formats?
- What are the specific learning outcomes students are expected to meet upon completion of the course?
- Are there any differences in the specific learning outcomes for this course for the different formats (online and face-to-face)?
- What kind of assessment methods do you use to assess student learning in your face-to-face course?
- Can you explain each method to me that is, what is the purpose of each method and which learning outcome do you expect students to meet through it?
- What kind of assessment methods do you use to assess student learning in your online course?
- Can you explain each method to me, that is, what is the purpose of each method and which learning outcome do you expect students to meet through it?

- I notice that there are some differences (or no differences) in the assessment methods between your face-to-face courses and your online courses. Can you tell me your rationale for these differences (or lack of differences)?

2) What methods do community college faculty members perceive to be most effective in assessing student learning in online courses compared to face-to-face courses and why?

- Which assessment methods do you use in your face-to-face course do you feel are most effective in truly assessing student learning?
- Why do you feel a, b, and c methods are most effective?
- What positive changes in student learning behavior or actions have you observed through the use of a, b, or c methods?
- Which assessment methods do you use in your face-to-face course do you feel are least effective in truly assessing student learning?
- Why do you feel d, e, and f methods are least effective?
- What changes in student learning behavior or actions have you observed through the use of d, e, or f methods?
- Which assessment methods do you use in your online course do you feel are most effective in truly assessing student learning?
- Why do you feel g, h, and i methods are least effective?
- What changes in student learning behavior or actions have you observed through the use of g, h, or i methods?



- Which assessment methods do you use in your face-to-face course do you feel are least effective in truly assessing student learning?
- Why do you feel j, k, and l methods are least effective?
- What positive changes in student learning behavior or actions have you observed through the use of j, k, or l methods?

