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Faculty Perceptions Regarding Best Practices in Clinical Dental Hygiene Assessment

Brenda Kaye Walstead
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Brenda Walstead

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Walden University
2015

Abstract

Faculty Perceptions Regarding Best Practices in Clinical Dental Hygiene Assessment

by

Brenda K. Walstead

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

April 2015

Abstract

This qualitative case study explored faculty perceptions regarding best practices and uses of assessment in a dental hygiene program at a small northwestern college. It was discovered that faculty in the program were assessing students in their clinical courses using widely varied methods, designs, and scoring tools. Faculty neither calibrated processes nor communicated about this problem. In addition, a review of the assessments in this local setting indicated a significant gap in the current guidelines for best practices in clinical assessment procedures. Knowles' adult learning theory served as the foundation for this study. Research questions were designed to obtain clinical faculty's perceptions of their knowledge of best practices in assessment, assessment design, methods including scoring tools, and how faculty could work collaboratively to implement clearly and consistently designed best-practice assessments in their clinical courses. Interviews and reviews of assessment documents were conducted with a purposeful sample of 8 faculty participants. Data were coded and analyzed for common themes. Results indicated that instructors did not collaborate and had little knowledge of assessment criteria based on best practices, administration, and scoring procedures. At the request of the dean, a position paper was created as a project. The paper outlined strategies for designing clinical skills assessments with criteria that is consistent, clear, and based on best practices. Also included were procedures for ongoing faculty professional development and collaboration, insuring that faculty are calibrated and that assessments are valid and reliable. The results of this study can promote positive social change as faculty in this program will be increasingly confident in assessment practices, and graduates will consistently provide greater quality patient and community care.

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Dedication

I dedicate this project study to my mom, Barbara Bankson, who died in a car accident on December 1, 1995. I think of her often and know she would be here cheering me on if she could. My mom was an example of unconditional love that I hope to emulate in my life. I missed her in this journey as she always had a genuine interest in what I was doing and loved searching for articles. She was more than a mom; she was the best grandmother and friend ever.

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Section 1: The Problem

Introduction

The problem for this project study was that faculty in the dental hygiene program at a small northwestern college were measuring student learning in clinical courses with assessments that were not based on the literature's definition of best practices in assessment. Kallison and Cohen (2010) and Suskie (2013) stated that best assessments' values derive from their consistency in design, grading scales, and clarity. The dental hygiene program's assessments at the institution under study were inconsistent in all. Hutchings, Ewell, and Banta (2013) stated that best assessments include clearly stated purposes with as much attention paid to the practices that link to the outcomes as the outcomes themselves. During the 2013-14 school year, faculty at the research site began examining their clinical course assessments for the purpose of the assessments' eventual implementation into the paperless management system. As the faculty compared and contrasted assessment designs and procedures, I identified a gap between the current clinical assessment procedures and those following guidelines for best practices as presented in current literature (Hutchings et al., 2013; Kallison & Cohen, 2010; Suskie, 2013). This gap is one that could lead to inconsistent patient care.

Assessments based on best practices provide evidence about how well learners are developing in knowledge and skills towards meeting the program's learning outcomes (Hutchings et al., 2013; Razek & Awad, 2011). Without assessments based on best practices, the dean of the business and health sciences program is unable to provide the college administration and other program stakeholders with data to examine the

effectiveness of the dental hygiene curriculum. Over time, lead faculty members have created assessments for their clinical courses without knowledge or application of best practices in assessment. For example, Suskie (2013) stated that assessments should be consistent and easy to understand. However, the clinical assessments in place were widely varied in design and grading scales. In fact, there was very little consistency among all of the clinical assessments. As a result, the dean asked for a detailed report on best practices to implement for clinical skills assessments.

In order for faculty, who are responsible to the dean and others within the academic hierarchy, to assess based on best practices, I needed to know what faculty knew, or did not know, to work collaboratively with them in their assessment efforts. I was then able to create a detailed report to the dean, who asked for a solution to the problem. From this detailed report, I have parameters set for responding to the dean with a consultant's report on evaluating knowledge and use of best practices in clinical assessment. I created this report employing Knowles's andragogical model for adult learning (Knowles, Holton, & Swanson, 2011) as the theoretical base. The outcome of the consultant's report was to provide the dean with information on how and why dental hygiene faculty should create clearly understood and consistent clinical assessments based on best practices. Positive social change will occur as faculty increase their confidence in assessment of student learning and implement best-practice-based teaching. The institution will have valid and reliable assessments in place for the dental hygiene program and will, therefore, gain a greater understanding in how to best assess clinical skills. Additionally, employers will report more highly skilled dental hygienists. With

clear and consistent assessments in place, the project study will further result in positive social change as patients will be treated by dental hygienists who are educated to provide the highest in quality health care.

Definition of the Problem

I studied the learning environment at a dental hygiene program where current methods of assessment allowed students to graduate from the program without having met each of the program's competencies to the same level of proficiency. In a department-wide meeting, I observed that clinical assessments were inconsistent in grading scales, design, and clarity; therefore, assessments were inconsistent with what Hutchings et al. (2013), Kallison and Cohen (2010), and Suskie (2013) stated as best practices in assessment. The depth of this clinical assessment problem reached into 16 courses taught over seven quarters. The problems present in this local setting indicated a significant gap in the current clinical assessment procedures and those following guidelines for best practices as presented in current literature. To close this gap in practice, more information was needed regarding current assessment designs and procedures in this local setting. In order for ameliorative actions to take place in this program's assessment practices, I needed additional information regarding faculty perceptions of best practices in assessment. Closing this gap will lead to positive social change as instructors are able to assess and provide instructional feedback in a consistent and empirically supported manner. The program will graduate dental hygiene practitioners who are educated and assessed using consistent methods and who are, therefore, able to provide a higher quality of patient care.

Rationale

Evidence of the Problem at the Local Level

The dental hygiene program's assessments contained a wide variety of grading scales and assessment constructs. For example, the dental hygiene program utilized approximately 15 different rating scales for measuring assessments of clinical skills. When asked, the lead instructors did not know how other lead instructors were assessing students' clinical skills (personal communication, January 14, 2013). For example, one clinical course utilized an assessment with rating scales of *standard not met*, *clinically acceptable*, and *standard met*. Another clinical course used rating scales of *unsatisfactory*, *needs improvement*, *satisfactory*, and *mastery*. Some assessments were written in rubric form with rating scales reading from highest-to-lowest score, and others were written from lowest-to- highest score. Some assessments included a column for exceeding expectations, and others did not measure if the student surpassed a satisfactory score. Assessments work best when they are clearly stated and when faculty and students have a shared understanding of the assessment processes in place (Hutchings et al., 2013).

According to Suskie (2013), best practices in assessment demand evaluations be clearly written and understood for student learning to occur. The reason I needed to study this problem was that the clinical assessments carried out at this locale seemed to be neither clearly written nor similarly understood among the faculty. The results of unclear assessments include confused learners and faculty members as well as a lack of evidence

that students have met each competency to the level needed to graduate and practice dental hygiene (Hauer, Holmboe, & Kogan, 2011).

Essential to each clinical assessment are clinical course competencies. Clinical competencies are the components of a competency assessment that measure whether students have mastered a particular skill or skill set. Lurie (2012) defined competencies as the set of clinical skills a learner should demonstrate with increasing progress along his or her educational journey. The dental hygiene school being studied had several competencies the program's faculty claimed students were able to perform upon graduation; hence, the program was competency based. The current methods of assessment, however, allowed students to graduate from the dental hygiene program without evidence of having met each of the program's competencies to the same level of proficiency.

An important component of clinical assessment is the grading scale. Grading scales measure and identify whether a student is competently performing a skill (O'Donnell, Oakley, Haney, O'Neill, & Taylor, 2011). At the local level, assessment grading scales in the dental hygiene program were varied and inconsistent. According to Washer and Cochran (2012), the creation of clinical assessments with consistent grading scales would lead one to expect students with higher levels of clinical skills. Addressing clinical assessment grading scales for consistency supports positive social change as dental hygiene graduates will be providing improved patient care.

There was also a time constraint for my study, which added to the local problem. The dental hygiene program was implementing a paperless management system called

axiUm. AxiUm will house the program's clinical assessments. AxiUm requires assessments to have similar grading scales. The dental hygiene program was scheduled to have axiUm in place by the end of Fall Quarter 2014. Assessments would need to be fully implemented in axiUm by the beginning of Fall Quarter 2015. Therefore, faculty members were facing a challenge in the timeliness and outcomes with regard to how they conducted and assessed clinical processes. The implementation of axiUm was not the problem for this study; however, axiUm did make solving the gaps in practice both required and timely.

In addition to the local needs of the dental hygiene program, there is a larger education situation that will benefit from my study. The larger situation involves maintaining program and college accreditation through accountability. The dental hygiene program serving as the research site would be placed at risk without clinical assessments in place, as the dental hygiene program would not be able to continue if it lost its accreditation status (Commission on Dental Accreditation [CODA], 2012). Other career and technical programs at the college face third-party accreditation requirements as well. The results of this study might also help faculty in other career and technical programs to develop clear and consistent skills assessments based on best practices.

Evidence of the Problem from the Professional Literature

As assessments are used for accountability, course improvement, and program improvement, Kuh (2012) stated that tensions often become elevated between these reasons for student learning assessment. Likewise, in the dental hygiene program, assessments are conducted to measure student learning and results are used to drive

curricular change. Just as important, assessments are mandated by the college and dental hygiene program's accreditors. Tensions, such as those Kuh (2012) addressed, happen when faculty feel they are being forced to do something for other parties such as college administration or accreditation agencies rather than for their own instructional needs. The dental hygiene program's faculty must track and store assessment data for the purposes required by the CODA and the Northwest Community College and Universities. The results of the program's assessments are to be transparent and obtainable during program-specific and college-wide accreditation site visits. Volkwein (2011) stated that assessment for accreditation purposes often results in summative information due to what Volkwein termed an overemphasis on outcomes. Volkwein stated that too much focus on outcomes might not provide the developmental learning evidence needed for program and course improvements that are the focus of contemporary assessment activities. Accountability and course or program improvement are both reasons for faculty to base assessments on best practices, thereby not allowing students to graduate from the dental hygiene program without having met each of the program's competencies to the same high level of proficiency.

Dental hygiene programs must comply with standards determined by the CODA (2012) including accountability measures for program assessment. According to Kuh and Ikenberry (as cited in Hutchings, 2010), surveys illustrate that chief academic officers (CAOs) view assessment at their institutions differently than faculty. The National Institute for Learning Outcomes and Assessment (NILOA; as cited in Hutchings, 2010) surveyed CAOs at 2,809 2- and 4-year higher education institutions. According to Kuh

and Ikenberry, the NILOA survey explored the assessment activities and use of assessment results in the higher education institutions being studied (as cited in Hutchings, 2010). NILOA followed the initial survey with another to faculty, whom CAOs stated were informed regarding assessment. Kuh and Ikenberry reported that accreditation mandates were one of the greatest reasons college CAOs gave for assessing student learning. However, program improvement and faculty interest were considered the primary reasons for assessment by faculty (Ewell, Paulson, & Kinzie, 2011).

Dental hygiene faculty who need to revise their assessments to be consistent with best practices could view this need as an invasion on their autonomy, or they may see it as an opportunity to improve assessment processes leading to program improvement and improved patient care. Lederman (2010) recognized the ownership faculty have over their own curriculum and that to some faculty, “Assessment seems like a tool that could be used against professors, to prove that they're not doing a good job” (para. 7). Dental hygiene faculty might also have agreed with CAOs, as the third party accreditation from the CODA is due in 2017 and is often on faculty members’ minds, as data from the 2014-2015 school year are collected for this visit. By conducting this study, I learned where faculty stood on accreditation and accountability issues as well as how they stood as a collective body of instructors. I was also instrumental in helping faculty to better understand the importance of assessment for both accreditation and accountability.

As stated previously, inconsistent assessments allowed the dental hygiene program students to graduate without having met the clinical competencies to the same level of high proficiency (Hauer et al., 2011). In order to ameliorate this problem, I

studied faculty perspectives regarding assessment. From there, I developed a detailed report to the dean who had asked for a clearer understanding of assessment and best practices in light of program regulation and environmental changes occurring at the institution. Through this detailed report, strategies are in place for dental hygiene faculty to satisfy the requirements set forth by the dean for revising clinical assessments to be based on best practices. According to Hauer et al. (2011), tools have been created to assess clinical skills; however, there is a scarcity of information regarding how to educate faculty to use them. I addressed this problem by aligning faculty perspectives with best practices in assessment. In the report to the dean, I proposed strategies specifically directed toward how faculty might engage in designing assessments that best measure learning of clinical skills.

Information derived from this project study enabled me to provide the dean with a detailed position paper outlining the parameters for implementing designs, methods, and processes for clinical assessments based on best practices. Positive social change will ensue as parameters for the detailed report could further serve as a guide for the college's other technical programs' assessment needs. Positive social change will follow as the program's courses are taught by faculty who are confident in how they assess the students' clinical skills. Dental hygiene graduates from this program will be more highly qualified dental hygienists whose skills are measured using standards of best practice and who will provide an increase in the quality of patient care (Blaich & Wise, 2011; Hutchings et al., 2013). Furthermore, students will be graduating from the dental hygiene

program having met each of the program's competencies to the same level of proficiency. In the next section, I define key terms used throughout this study.

Definitions

The accreditation standards for dental hygiene education require that dental hygiene programs adopt certain definitions (CODA, 2012). Key terms used throughout this study are defined as follows:

Clinical assessment: The collecting of information in clinical courses to establish the degree of comprehension and performance skills of students (Manakil & George, 2011; Wood, Mitchell, Holt, & Branson, 2014).

Competency: A complex behavior, ability, outcome, or skill performed and observed to a standard consistent with patient health and safety (CODA, 2012; Pimlott, 2011). "Written statement describing the levels of knowledge, skills, and values expected of graduates" (CODA, 2012, p. 9).

Competency-based education (CBE): An approach to educating health care providers for practice that is focused on outcomes and abilities that are organized based on competencies derived from knowledge, skills, and values expected of graduate dental hygienists (CODA 2012; Frank et al., 2010).

Competent: "The levels of knowledge, skills, and values required by new graduates to begin the practice of dental hygiene" (CODA, 2012, p. 9).

Formative clinical assessment: The accumulation of evaluative information occurring within the instructional process and used for evaluating and directing students' clinical skills' development (Garrison & Ehringhaus, n.d.; Felder, Brent & Prince, 2011;

Ussher & Earl, 2010). For dental hygiene students, the discoveries resulting from formative assessments help identify strengths and weaknesses for the purpose of modifying necessary teaching and learning strategies while the student is performing the skill (Garrison & Ehringhaus, n.d.; Hauer et al., 2011; Wood et al., 2014).

Rating scale: A variety of point allocations dependent on the decisions of the faculty teaching the clinical courses. The points are meant to indicate if aspects of a competency have been met or if components of a competency are not at a level that meets the determined standard (Hauer et al., 2011; Licari, Knight, & Guenzel, 2008).

Reliability: Consistency in measurement; in other words, a reliable assessment tool results in comparable scores among evaluators evaluating the same student's skills (Hauer et al., 2011; Alston & Love, 2010). Reliability indicates the extent that the results of the clinical assessment can be replicated answering the question of whether the assessment is consistent among the evaluators (Lurie, 2012).

Standard: The basis of comparison established in assessing a clinical performance and often the criterion used as a model of competence (CODA, 2012).

Summative assessment: The accumulation of information to assist in curricular decision making. Findings of summative assessments are used to determine whether students have accomplished course and program outcomes and are often used to determine final grades (Hauer et al., 2011; Lurie, 2012; Ussher & Earl, 2010).

Validity: The accumulation of evidence supporting the premise that an assessment is measuring the competency being assessed and that the assessment actually measures the acquisition of the skill, knowledge, or abilities being evaluated (Hauer et al., 2011;

Alston & Love, 2010). Validity refers to the extent that evaluators are assessing what they are intending to assess answering the question of whether an assessment is credible or not (Mould, Bray, & Gadbury-Amyot, 2011).

Significance

Dental educators might assume that positive social change will result from closing the gap between the current clinical assessment procedures and those following guidelines for best practice. Closing the gap will occur as faculty, students, future employers, and all stakeholders know that students are competent in their clinical skills. Indeed, it is the faculty who will need to drive this change. As dental hygiene schools compete for the best students, students will be more likely to choose a dental hygiene school that provides documentation of best practices-based curriculum and resulting competencies. Therefore, my purpose for this study was to explore perceptions of faculty regarding best practices in clinical skills assessments and their use in the clinical learning environment in order to align all clinical assessment designs and practices. From there, the dean and other academic leaders can implement closing the gap between the program's current practices and those that are consistent with best practices in assessment. As a result, the program will graduate more highly qualified dental hygienists with higher levels of learning and knowledge. Most important to this study's significance is that positive social change should result as dental hygiene graduates meet each of the program's competencies to the same level of proficiency, which leads to dental hygiene patients receiving a greater quality of care.

Guiding/Research Question

Prior to providing senior decision makers with assessment data, I needed to examine the dental hygiene program's clinical assessments currently in place. By reviewing current clinical assessments, I noticed that clinical assessments were designed differently within and between clinical courses. The problems present in this local setting indicated a significant gap in the current clinical assessment procedures and those following guidelines for best practices as presented in current literature. By studying faculty perceptions regarding best practices in assessment, I sought answers to the following:

- What is the dental hygiene faculty's perceived knowledge of best practices for clinical assessment in a dental hygiene program?

Deriving from this original question, subquestions were as follows:

- What are dental hygiene faculty practices for assessing students' clinical skills and knowledge?
- How does a dental hygiene faculty's design of clinical assessments reflect their perceptions of best practices in assessment?
- How does a dental hygiene program use best practices in assessment to design clinical assessments that are constructed similarly among each of the clinical courses?

By conducting this project study, I am able provide senior academic officers with data they can use for reporting the college's assessment practices, specifically the dental hygiene program's data.

Past research on clinical assessments included more research in the medical and dental fields than in the field of dental hygiene. Authors agreed that valid and reliable skill assessments were needed; however, much of the research on best practices in assessment was based on classroom assessment rather than developing and designing clinical assessment forms and procedures (Kramer et al., 2009; Licari, Knight, & Guenzel 2008). For example, the college's outcomes and assessment liaisons commonly referred faculty to Angelo and Cross's *Classroom Assessment Techniques* (1998; personal communication, September 25, 2012). However, unlike classroom assessments, clinical assessments require evaluating students' skills attainment, including different levels of learning (beginning learner to competent learner). Although research on competency-based education has called into question ambiguous results instructors and students often acquire from assessment of competencies, some researchers have stated that the problem is with the measurement tools (Frank et al., 2010; Manakil & George, 2011). Others argued that the competency often does not clearly define what the student should be assessed on (Fahy et al., 2011). Therefore, my project study needed to address these questions as they related to dental hygiene skills assessments.

The type of research needed to answer these questions was a case study, as my goal was to understand the perspectives of the faculty at the research site. I worked closely and spent much time with the faculty members who were the participants in the study. The relationship I had with the participants was unlike a quantitative researcher who endeavors to remain blind and, therefore, objective to the conditions the participants are experiencing (Hancock & Algozzine, 2011). The next section is a review of the

literature around best practices in assessment. In addition to assessment, I discuss adult learning theory (Knowles, 1984) as a foundation for my study. Following that, I review the literature surrounding how assessment and adult learning theory tie into the problem of learning faculty members' current knowledge in order to close the gap in the dental hygiene program's assessment practices.

Review of the Literature

In the case study I conducted, I identified faculty knowledge and use of best practices in assessment. Researchers have stated that without clear and consistent evaluations, students will be graduating from this technical program without faculty, future employers, college administrators, the community, and all stakeholders knowing with surety that students are competent in their clinical skills (Bartlett, Schleif, & Bowen, 2011). After learning faculty members' current knowledge, perceptions, and practices as they pertained to best practice-based assessments, I created the detailed report, which the dean of the business and health sciences program asked me to do. The report, in the form of a position paper, includes parameters for a learning module designed to assist faculty in creating consistently designed assessments for their clinical courses. Professional literature supported the need for assessments based on best practices, thereby supporting my need to know faculty members' knowledge levels in order to help them create valid and reliable clinical assessments.

Domains for the Literature Review

I conducted the literature review supporting this study in three major domains: best practices in assessment, clinical assessment, and competency-based assessment. To

obtain articles pertinent to dental hygiene clinical assessment, designing clinical assessments, and faculty attitudes toward assessment, I considered different keywords. These words included *assessment, best practices, dental hygiene, clinical assessments, competency-based education, dental skills assessments, designing assessments, designing evaluations, faculty perceptions, adult learning theory, andragogy, student learning, and change diffusion*. Additionally, I incorporated the Boolean operators (*and, or, and not*) to further narrow my search for relevant articles. To search for dental and dental hygiene articles, I used Thoreau to search multiple databases available through the Walden Library. I also used the American Dental Educators Association Library for articles pertaining to dental and dental hygiene assessment, accreditation requirements, and faculty attitudes. Moreover, I searched the National Association for Learning Outcomes and Assessment after e-mailing the Assessment of Teaching and Learning faculty members for suggestions. To ensure that I indicated appropriate academic, scholarly, and peer-reviewed articles and journals, I selected these requirements in my search.

Saturation of the Literature

Licari et al. (2008) provided a detailed investigation of the design of dental assessments in the clinical setting and how the design affects student learning. This article addressed combining best practices in assessment with the importance of writing and designing clinical assessments. I searched Google Scholar for journal articles specifically citing this article and found 13 citing Licari et al.'s article on designing clinical assessments. Although these articles did not specifically address the criteria for designing an effective assessment, they did speak to other areas to take into consideration

when designing the evaluation form. For example, Gadbury-Amyot, Purk, Williams, and Van Ness (2014) highlighted the importance of including the stage of learning a clinical skill into the assessment, whereas Licari et al. seemed to be saying either a skill is performed correctly or it is not. In other words, if a student does not meet the standard during one step of placing a filling in a tooth, that student would be evaluated as unsatisfactory.

The American Dental Educators' Association offers more research on dental rather than dental hygiene clinical skills assessment. However, there have been very few studies on how the design of assessment affects the faculty's capability to correctly assess a skill or the student's ability to learn from the assessment. There were also few current studies on the relationship between best practices in assessment and incorporating those best practices in clinical skills assessment in the dental and dental hygiene field.

Understanding faculty perceptions of best practices in assessment was essential to help ascertain best practices in clinical assessment. Understanding faculty attitudes toward a change in how they assess students' clinical skills could be helpful if resistance to change is encountered (Tagg, 2012). Clinical assessment practices were determined by what faculty perceived to be most effective in determining student competency. Additionally, faculty determined how the dental hygiene assessments aligned with best practices. Assessment literature confirmed that when faculty members are engaged in the practice of developing evaluations, program assessment is more likely to be successful than when faculty are not involved in the process (Farkas, 2013; Trullen & Rodríguez, 2013). The action of developing assessments assists faculty in rethinking their clinical

courses (Farkas, 2013; Herman, 2013). Consistent with the literature, as I learned from the faculty's perceptions of best practices in assessment, the faculty were in a place to work collaboratively on designing clinical assessments to accurately measure students' learning of clinical skills.

Theoretical Base

In this study, I explored dental hygiene faculty perceptions of best assessment practices in clinical courses taught by the lead clinical faculty. Change in assessment practices and need for faculty development were driven by the many inconsistencies in the dental hygiene program's clinical assessments. After combing the literature for a pertinent theoretical base, I found consistent themes supporting the view that faculty development and change are consistent with adult learning (Rutz, Condon, Iverson, Manduca, & Willett, 2012). Therefore, I based the study of faculty perceptions around best practices in clinical assessment on Knowles' (1984) concepts for how adults learn.

According to the literature, Knowles's (1984) concepts developed for how adults learn—*andragogy*—appeared to be an applicable framework for this study. Merriam, Caffarella, and Baumgartner (2007) referenced Knowles's classical model and stated that Knowles contributed many meaningful perceptions regarding the characteristics of adult learners. In contrast, Hartree (as cited in Smith, 2002) asked whether Knowles's work was an actual theory or rather a set of guidelines to direct educators. Hartree further questioned whether Knowles's model listed actual descriptions of what an adult learner is really like or what the adult learner *should* be like. Others such as Tennant (1988) argued that Knowles failed to place his ideas within a clear and reliable conceptual framework.

Although scholars had different viewpoints regarding Knowles's model for adult learning, the assumptions he made worked as a solid foundation for this case study.

Andragogy is a concept first developed in 1833 by a German educator named Alexander Kapp and advanced by Knowles as a term for how adults learn (Henschke, 2010). Knowles (1984) framed a "systematic framework of assumptions, principles, and strategies" (p. 7) he termed the *androgogical model*. Knowles based the adult learning concepts on six assumptions, two being the need to know, and readiness to learn (Knowles, Holton, & Swanson, 1998). Knowles et al. (1998) argued that the "power of andragogy lies in its dynamic application, not in a rigid recipe for action" (p. 2). I will expand on two assumptions for how adults learn and how these assumptions supported the theoretical base for the project study.

The need to know, also referred to as inquisitive behavior, refers to adults' inquisitive behavior before engaging in any learning activity (Knowles et al., 2011). Inquisitive behavior was particularly important to my study because faculty would need to know why they are involved in learning something new prior to being willing to align their assessments with best practices (Knowles et al., 2011). Knowles et al. (2011) stated that adults learn best when the need to know increases as they come to realize the gaps in practice between where they are now to where they want to be. Knowles et al. (2011) also stated that adults are more likely to engage in learning when they perceive the value of the process.

Although faculty being held accountable for student learning could view this requirement as reason enough to participate, according to Anrade (2010) and Farkas

(2013), faculty should be recognized for their participation. The recognition of faculty goes beyond the results of their assessments. By framing communications with faculty using adult learning constructs, recognition, and the faculty members' need to know, faculty perceptions regarding the assessment process should become clear to the program's faculty as well as to the administration.

Another of Knowles's assumptions was readiness to learn (Knowles et al., 1998). Most adults become ready to learn when they realize that the decision to learn or not will have a significant impact on their lives (Knowles et al., 2011). In contrast, children learn after being told they must learn something in order to pass (Knowles et al., 2011). Adults' readiness to learn can be viewed as something that leads to job success (Knowles et al., 2011). This reason for learning is important for faculty being asked to learn new knowledge and technological skills that will impact their work behaviors and their ability to measure student learning.

Due to life experiences, adults have different learning needs than children. Knowles (2012) argued that adults are likely to resist learning until they see the relevance to their self-identified needs. Knowles stated that evaluating a program is the most misunderstood concept in education and that the confusion lies in the reasoning behind assessment. Assessment is not to justify the way educators teach; assessment is to improve teaching and learning (Knowles, 2012). Therefore, faculty with life experiences in the field of dental hygiene, who understand their need to know and are ready to learn about assessment, are important contributors to a profession responsible to educate future health care providers.

As Knowles's concepts indicate, adults learn differently than children (Knowles, 2012). This difference is important to take into consideration when planning a learning activity for adult learners. One approach for working with faculty on their assessments could be learning contracts. Knowles (2012) stated that the use of learning contracts is the most significant tool to use in professional development. Contract learning solves the problems of getting the learner to own the problems by identifying different resources to provide for different learning styles, and it involves the learner in evaluating the learning outcomes (Knowles, 2012). Knowles stated that contract learning has been successful with professional development programs in dentistry, nursing, and medicine. Learning contracts support the concepts behind andragogical theory, whereby learners identify and select the format, methods, and materials to design their learning experiences (Knowles, 2012). Contracts may be one means for working with faculty on their clinical assessment processes, all the while taking into consideration the assumptions adults possess when faced with learning something new. For example, faculty could take Kolb's Learning Style Inventory (Kolb, 1974) to recognize their own learning styles. From there, a collaborative discussion among faculty could ensue to develop outcomes and methods for an assessment learning module.

The Broader Problem

Formative and summative assessments are continuous throughout the dental hygiene students' education and are an ongoing process within dental hygiene programs. The broader problem was related to the need for consistent assessments. Without consistent and clear assessments, faculty could be passing students without evidence of

the students' knowledge and ability to perform clinical skills (Beaumont, O'Doherty, & Shannon (2011). It is these clinical skills students need in order to move to the next course in the program or to ultimately practice dental hygiene. Beaumont et al. (2011) stated that the approaches toward assessment could have more influence on what and how students acquire knowledge than the teaching style of the instructor. Therefore, what faculty learn about their students' knowledge and skill levels through clearly developed assessments could aid all dental hygiene faculty in the learning they are endeavoring to impart.

Competency-Based Education

The dental hygiene program I studied is known as a competency-based professional technical program (CODA, 2012). Literature on health care education is filled with references related to competencies and competency-based education. For example, Frank et al. (2010) and Manakil and George (2011) discussed competency-based education. The authors stated that there remains debate as to what exactly competency-based education means and how best to assess it (Frank et al., 2010; Manakil & George, 2011). Most authors agree that competency-based education means instructors are educating students in a particular program to practice career-specific skills (Frank et al., 2010). Student education is focused on outcomes and abilities that are organized and based on competencies derived from knowledge, skills, and values expected of graduates (CODA 2012; Frank et al., 2010). The CODA's (2012) definition codifies dental hygiene's philosophy for teaching dental hygiene skills. However, as Frank et al. and

Manakil and George argued, faculty are not aligned with how to best assess within a competency-based program.

Faculty in competency-based programs are required to ensure all competencies are met prior to graduation. Assessment of competence requires at least one evaluator who determines whether a student is competent and who is able to demonstrate how competence is measured (Fahy et al., 2011). With only one instructor judging a student's competency, the risk of subjective evaluations increases; hence, it is necessary that faculty members agree on what developing competence looks like at each stage of the students' learning (O'Donnell et al., 2011). In other words, for faculty to ensure students are ready to graduate, faculty should be calibrated on how competence is measured along the entire continuum of clinical skills' development.

Deciding when a student has mastered a skill is important when taking competence of a clinical skill into consideration and the scales used to rate the degree of competence a student achieves. F. Licari (personal communication, March 17, 2013) asked if faculty assess a student as unsatisfactory for the performance of one criterion or part of a clinical skill, should faculty assess the student as not competent to perform the entire skill. In other words, if a student does not do well on one part of a skill assessment, should the student fail the entire skill evaluation? According to F. Licari (personal communication, March 27, 2013), this is an important decision to make when designing dental hygiene skills' assessments.

When assessing clinical skills, faculty should ensure students are learning at the level of performance expected, whether novice, developing, or competent (O'Donnell et

al., 2011). It is also important for clinical faculty to be calibrated in their assessment of clinical skills at the levels of performance being measured. Calibration assists faculty in determining what is expected at the performance level of the student. Calibration also aids in ensuring reliability (Alston & Love, 2010). Although it is an accepted concept in the literature that skills assessments should be reliable and valid (Alston & Love, 2010), reliability is one factor that is difficult to attain when assessing clinical skills (F. Licari, personal communication, March 17, 2013). F. Licari (personal communication, March 17, 2013) explained that the difficulty is because reliability combines the characteristics of both the skill assessment and many individual faculty members assessing students' clinical skills. The problem of evaluating a student's clinical performance using evaluation scales to determine competence or levels building up to competence, is a problem that I addressed in my project study.

To implement clinical assessments that are consistent in format yet reliable and valid for all clinical courses could be challenging. Yanhua and Watson (2011) suggested that even when reliable and valid instruments for assessment of clinical competence are established, there still remains the question of determining when or whether a student is actually competent. F. Licari (personal communication, March 17, 2013) suggested that competency-based education assessments are centered on whether the student has learned the skill or has not learned the skill. In other words, is the student able to perform the skill to a standard of clinical practice or not? Although I agree with Licari that the final product or skill is either attained or not attained, the aim for the education of dental hygiene students is to break down difficult concepts and skills and assess formatively as

the students learn. For example, to claim a student is competent in providing necessary care, the requirements for accreditation of dental hygiene schools “include process and end-product assessments of student performance” (CODA, 2012, p. 19). The CODA (2012) further suggested that programs use “process and product evaluation forms” (p. 19). Therefore, as the faculty explored assessment measures, it was important for the instructors to determine where the students being assessed were at in the process of becoming clinically competent in order to develop valid and reliable assessment instruments.

Assessment and Accreditation Requirements

In addition to learning about student progress, assessments offer evidence of the need for curricular changes. This evidence aids the faculty in fulfilling accreditation requirements. Additionally, assessments based on best practices also inform faculty and students of what students are learning and answer questions about how students can experience deeper learning (Suskie, 2013). Assessments are continuous; Reed and Malandra (2011) emphasized the importance of purposefully designing a continuous feedback loop within the evaluation process. Reed and Malandra stated that administrators and faculty must continually demonstrate how assessment data are used to make curricular improvements.

As an accreditation consultant, Suskie (2013) argued that assessments are not about writing accreditation reports; instead, accreditation reports should inform course and program assessment practices. According to Banta and Blaich (2011), “Although much of the national conversation about assessment focuses on measurement issues,

encouraging the use of assessment data to guide change is much more about collaborating with colleagues to decide what to improve than it is about measurement” (p. 23). As Banta and Blaich (2011) stated, “Evidence forms the basis for these collaborations, but even the most beautifully collected and interpreted evidence will have no impact on students whatsoever unless it engages an institution’s faculty, staff, governance structures, faculty development programs, and leaders” (p. 23). As the authors have stated, meaningful assessments should engage all of an institution’s stakeholders.

The decision on whether to focus assessment practices on curriculum or accreditation should be one and the same. Calderon (2013) noted that educators participate in assessment practices to improve curriculum *and* meet requirements of accreditation agencies. Kallison and Cohen (2010) agreed that accreditation does have an impact on colleges’ processes of accountability for learning and that faculty are responsible for ensuring that learning is taking place. Accreditation results are reported in college accreditation reports as well as program specific accreditation reports. The engagement of faculty in assessment and accountability is crucial to program, classroom, and clinical assessment processes and should help in developing curriculum.

Clinical Assessments in Relation to Classroom Assessments

Clinical assessments have many of the same components as classroom assessments since both measure student learning and obtainment of learning outcomes (Felder, Brent, Prince, 2011; Furman, 2013). Furman (2013) stated that all regional accreditation bodies support the Secretary of Education’s Commission on the Future of Higher Education recommendation that all colleges assess student learning. Assessments

are used to communicate about learning, and results of assessments inform instructors regarding how well they are achieving teaching and learning goals (Coward, 2010). Similarly, Hauer, Homboe, and Kogan (2011) highlighted the need for robust assessment tools to measure obtainment of clinical skills. Hauer et al. further stated that assessment is a process that should be reliable—consistent across assessment events—and valid—accurately measuring the acquisition of the skill being evaluated (Hauer et al., 2011). Likewise, Manakil and George (2011) asserted that clinical assessments need to be reliable and valid. Manakil and George agreed with Licari and Chambers (2008) that results of assessments should be generalizable to the clinical competencies for which the assessments are measuring. According to Manakil and George, clinical assessments need to be valid, meaning the evaluation assesses what it was developed to assess. As I studied faculty attitudes and perceptions toward the adoption of a change in the dental hygiene programs clinical assessments, I asked faculty to look critically at the assessments they currently use as they were determining how to create consistently reliable and valid assessments across their clinical courses.

Clinical skills assessments are focused on providing evidence that students can perform the outcomes determined by the program's faculty. Additionally, the program and clinical course outcomes must meet CODA standards. Assessment is central to many areas of dental hygiene education (CODA, 2012), and there are multiple ways clinical skills are assessed (Hauer et al., 2011; Kogan et al., 2012). The literature offers examples of how faculty should assess clinical skills. Hauer et al. (2011) argued that direct observation is needed for assessing psychomotor skills; however, the American Dental

Educators Association conducted a survey on the assessment of competencies in dental schools. The results indicated that dental educators assessing student competencies use the multiple-choice design most often. Although some program outcomes could be measured in this format, I would argue that the assessment of clinical skills would be difficult to measure in a multiple-choice format. In my opinion, students being assessed for skill competency should be assessed based on demonstration of clinical skills rather than recognizing the correct answer to a multiple-choice question.

Manakil and George (2011) stated that outcomes and assessment criteria should be “fixed” (p. 35). This statement means that students cannot do a superior job on one part of a competency to make up for an unsatisfactory on another criterion of the same competency. According to Licari et al. (2008), if a dental student is assessed on a clinical skill competency regarding an overall skill at 95%, yet one area is revealed to be unsatisfactory, the student should not be considered as being competent to practice the clinical skill. On the other hand, Gadbury-Amyot et al. (2014) recognized five different stages of learning clinical skills and the importance of incorporating the stage of learning into the assessment: (a) Novice, (b) Beginner, (c) Associative, (d) Proficient, and (e) Expert. I agree that to be competent in a skill, students must be competent in all criterion used to attain that skill. Yet, as Gadbury-Amyot et al. stated, for learning to occur, the stage of a student’s learning should be considered when conducting a skills assessment, thus making it important to assess each criterion leading to competence of the skill being evaluated.

Whether an assessment is designed so that a satisfactory score is given only when it meets the standards of excellence required by a competent clinician is something the faculty will need to decide. For example, faculty needed to decide whether the-stage of learning should be taken into consideration when evaluating a skill. It will be important for all faculty and students to understand and agree on what passing a clinical competency means—another gap in practice this study addressed.

Assessment literature differentiated between direct and indirect assessments of learning. Kuh (2012) defined direct and indirect assessment of learning, and according to Kuh, the evaluation of clinical skills' attainment would be measured directly while measurement of student attitudes toward learning would be assessed indirectly. Direct observation of dental hygiene students performing clinical skills is critical to evaluating competence. As faculty members assess students' clinical skills using direct observation, both faculty and students could benefit from being made aware of and understanding the criteria to be used to evaluate the skill being assessed. According to Kuh (2012), assessments need to tell the story of a particular student's learning. When assessment criteria vary among clinical courses, the story of a student's learning is difficult to attain, and progress toward competency is unclear.

There are different designs of assessment being used in health care programs other than dentistry. For example, Pandya, Bhagwat, and Kini (2010) studied medical skill evaluations and argued that the objective structured clinical exam (OSCE) is an effective method for assessing students' clinical skills. Pandya et al. stated that the OSCE is both reliable and valid. There are variations of OSCEs. Grover, Bhattacharya, Pandhi,

Singal, and Kumar (2012) studied the use of computer-assisted OSCE and found it to be a more effective assessment for cognitive learning than for assessment of psychomotor skills. Although there may be different assessments that faculty find useful, it is important for faculty to decide what assessment design works best for assessing dental hygiene clinical skills and to be consistent with its use.

The OSCE is one of many assessments used in the dental hygiene program I am studying. Faculty may or may not perceive the OSCE as the best method to assess clinical skills in a consistent manner and across all courses. O'Donnell et al. (2011) proposed that faculty should work collaboratively to develop rubrics as the evaluation tool for assessing clinical skills. O'Donnell et al. argued that rubrics would reduce the amount of subjectivity characteristic to clinical skills assessments. Dental hygiene faculty members have numerous rubrics in their courses. The key to the design and consistency among all of the assessments may likely be in what O'Donnell et al. stated, faculty working collaboratively in their development.

Just as there is a broader problem, the local problem remained that neither the criteria nor the measurement scales were consistent. One suspects that the opportunities brought to the program because of a paperless management system would lead faculty to consider the positive and negative aspects of the varied clinical assessments already in place. These aspects would help faculty develop assessments that are consistently designed. Most important to both broad and local problems is that positive social change will occur with faculty who are confident in their clinical assessment skills, an institution

with evidence students are learning what they need to learn in order to be successful in the field, and dental hygienists providing a greater quality of patient care.

Formative and Summative Assessments

Another means for considering various clinical assessments is whether these assessments are considered to be formative or summative. Licari and Knight (as cited in O'Donnell, 2011) considered assessments as summative when used to determine a course grade and formative when used for evaluating students while the learning of a skill is taking place. Lurie (2012) contended that formative and summative assessments are both important for students learning clinical skills. O'Donnell et al. (2011) added that faculty members often have trouble with the dilemma of giving formative feedback while still thinking they should be giving students a grade. In other words, the dilemma is between giving feedback for learning versus feedback for a grade.

There are other considerations faculty need to discuss when constructing assessments. S. Jones (personal communication, November 8, 2013) suggested the dental hygiene school use qualitative data for assessment. The faculty at the dental school she works at chose to use only quantitative data for a grade. According to S. Jones, the use of only quantitative data resulted in students whose grades did not match their performance. For example, there is a lack of evidence for students who are not meeting the standards. The use of quantitative without qualitative data often misrepresents a student's ability to meet a standard by making it seem as if a student is meeting the standard when he or she is not. If the only data are quantitative grades that are given upon attainment of a competency, the result can be an effort to dismiss a student without the necessary data to

back up the reasons for student failure (S. Jones, personal communication, November 8, 2013).

Summative grades without formative evaluations conducted during the students' learning processes lack the qualitative feedback students can use to help them learn clinical skills. McLaren (2012) called formative assessment the assessment *as* learning while labeling the assessment *of* learning as summative. Similarly, Washer and Cochran (2012) referred to formative as process assessment and summative as product assessment, emphasizing the need to assess the process of learning as well as the final product. Felder et al. (2011) described the difference between summative assessment, that which demonstrates student achievement levels, and formative assessments, that which supports teaching and learning, by underscoring the need for aligning outcomes, teaching methodologies, and assessment measures. Therefore, when faculty members revise their clinical course evaluations, they may find it advantageous to determine which assessments are formative and which are summative.

Purposefully transitioning from summative to formative assessments might lead faculty to explore different methods for assessing clinical skills and, at the same time, determine best practices. Adair-Hauck and Troyan (2013) acknowledged the significant move from more summative methods of assessment, stating that feedback should be constant, formative, and based on criteria connecting what is taught to what is being learned and evaluated. As the dean asked me and my peers to change our evaluations to align with best practices in assessment as well as the requirements for implementing axiUm, faculty members will learn what constitutes best practices in assessment.

Hutchings (2010) identified the need for educated faculty who understand the criteria used to assess student work and the need for consistency among assessment processes. Just as important, students need the opportunity to demonstrate their understanding to the faculty. Students should understand what they are being assessed for and how the instructors will determine competence (Manakil & George, 2011). Therefore, the clarity and consistency of clinical assessments might benefit both faculty and students' understanding of what is being assessed and how students are being evaluated.

Manakil and George (2011) stressed the need for consistent outcomes that are accepted by the faculty. For faculty to judge a student's competence, whether in the new technological environment or not, it is important for faculty to understand and agree on assessment processes. O'Donnell et al. (2011) stated that faculty acceptance increases as clarity and consistency increase. O'Donnell et al. supported Licari et al.'s argument that ambiguous and unreliable clinical assessments often result in dissatisfied faculty and students. According to O'Donnell et al., clear assessments lead to accurate judgment of competency; unclear assessments indicate vague results that lack accurate direction for further learning.

Assessments containing language that is difficult to follow result in less meaningful evaluations and poor indicators of competency (Fahy et al., 2011; Licari et al., 2008; Trullen & Rodriguez, 2013). Consequently, O'Donnell et al. (2011) stated that clinical assessment forms should have clearly defined criteria that both students and faculty understand. Obtaining consistency and clarity might in turn increase acceptance of the change in assessment processes by the faculty.

Authors differ in determining grading scales. Licari et al. (as cited in O'Donnell et al., 2011) discussed considerations regarding grades, in which some educators feel there should be a criterion for excellence delineating clinically acceptable from excellent. Some authors suggest using two scales of performance, such as *standard met* and *standard not met*. By only using two scales of measurement, an instructor determines that either a student can perform an entire skill competently or not (O'Donnell et al., 2011). For example, F. Licari (personal communication, March 17, 2013) argued that either a student could perform the skill in its entirety or not. This would give reason for only including two scales such as *satisfactory* or *unsatisfactory* when determining if a student is competently performing a clinical skill.

Other authors recommended using more than two scales to assess clinical competence. O'Donnell et al. (2011) suggested using rubrics that include more than two scales to indicate a student's level of performance. In this way, a skill would be broken down into steps and evaluated according to the student's level or stage of learning a particular skill. For example, O'Donnell et al. argued that assessments could include scales for *novice*, *developing*, or *competent* clinician, or *excellent*, *needs improvement*, and *critical error* to demonstrate assessment of students' performance of a clinical skill. Other authors stated that student performance during assessments improves when evaluation forms include clearly described criteria and weakens when they do not (Licari et al. 2008; Mafa & Sukutai, 2013; University of Technology Sydney [UTS], n.d.). Whether the faculty decide on two or more scales, best practices in assessment speak to consistency. Therefore, consistency and clarity will be important for faculty to consider

when developing assessments for clinical competency. In fact, clarity of assessment is one issue I intended to explore as I studied perceptions of faculty towards assessment practices.

Edwards, Minty, and Miller (2013) argued that context literary proficiency of students affects student learning and how students make meaning of assessment. Nicol (2010) added that students need opportunities to demonstrate they understand what is being assessed prior to being evaluated for grading purposes. In other words, formative feedback might include a thorough evaluation of the students' understanding for what and how they are being evaluated.

Evaluation of Skills Using Assessment Tools

Clearly constructed assessments should outline what is being evaluated. Maart and Bitzer (2012) studied a prosthodontic dentistry program where there were significant disparities between what was taught and what was assessed. Maart and Bitzer found that faculty assigned daily grades that did not correlate with clinical tests of performance and theoretical application. Nevertheless, Alston and Love (2010) argued that grades should correlate with clinical skills' evaluations, and calibration among instructors would support the reliability of the assessment. Maart and Bitzer found that clinical instructors grew professionally when asked to reflect on their own means of assessing students; however, the time faculty would need to change the use of clinical assessments was not something the authors foresaw as taking place in their program. However, Alston and Love (2010) stated that faculty should take the time to evaluate clinical students in a consistent manner, again stressing reliability. Although reliability is often difficult to

attain in a clinical setting, it is nonetheless considered a best practice in assessment (Suskie, 2013). Reliability of clinical assessments is something faculty are able to consistently strive for.

Levett-Jones, Gersbach, Arthur, and Roche (2011) discussed whether clinical competence can be assessed through evaluation of many different tasks or whether it is the assessment of all tasks together that gives the evaluator the best information as to whether a student is clinically competent. Hatfield and Lovegrove (2012) deliberated whether knowledge should be assessed during a skills assessment; Anrade (2010) suggested that knowledge, skills, and attitudes be assessed together and in a collaborative environment when evaluating for competence. Faculty may consider all of the above-mentioned implications when designing clinical assessments.

Need for Faculty Development Regarding Assessment

As educators consider what competency means to faculty, defining what competent looks like is critical. Black and Wiliam (2010) argued that not enough help is given to faculty on how to assess, and without this help, faculty will not meet measures of accountability. In other words, if faculty are not given help to learn what passing a competency means or looks like, then faculty will not be willing to try new means of assessing student learning (Black & Wiliam, 2010). As faculty evaluate best assessment practices to measure clinical competence, all faculty need to be educated on what being competent means (Hutchings, 2010). Evaluating dental students' performance from novice to competent is challenging for educators (O'Donnell et al., 2011). Scarbecz, Russell, Shreve, Robinson, and Scheid (2011) pointed out that the role of the health

professional educator is complicated. Dental hygiene educators enter the education arena as competent dental hygienists. In fact, educators are frequently hired due to their expertise in their professional field and not on their ability to teach or assess student learning (Scarbez et al., 2011). The lack of education about how students learn could be one reason for health professionals finding their roles as educators to be complicated.

According to Hutchings (2010), there is a need for faculty to be informed and educated prior to making decisions about how to assess student learning. Anrade (2010) argued that there exists little information and support for faculty conducting assessments. Moreover, Liu (2013) revealed the need for more information on how to best design an evaluation. The college and program I studied, as with other colleges, have characteristically hired faculty without requiring them to have education in how students learn (McAndrew, Motwaly, & Kamens, 2012; Felder et al., 2011). With the demand for assessment in education, there may be a need for dental hygiene educators to have documented education in the assessment of teaching and learning.

Beyond the willingness to expose ignorance and learn about best assessment practices, Felder et al. (2011) stated that faculty also need to be willing and motivated to change. However, just as faculty development opportunities in assessment might be lacking, Scarbez et al. (2011) suggested that there is often inadequate faculty development for faculty who are expected to change. According to Drape, Westfall-Rudd, Doak, Guthrie, and Mykerezi (2013), faculty develop the need to change when forced by changes in the environment. For example, faculty might agree to adopt and implement new assessment techniques into their curriculum. Yet to learn something new,

faculty must have opportunity to engage in learning. Faculty could, therefore, benefit from opportunities for learning through a module focused on developing skills in assessment and fostering significant curricular change. I included the parameters for a faculty development opportunity in the detailed report I was asked to prepare for the dean.

According to Scarbez et al. (2011), there is often a discrepancy between what faculty believe their role as instructors to be and their commitment and comfort in teaching a skill. Furthermore, Scarbez et al. stated that when faculty lack skills to implement a new technique into the curriculum, and then are expected to teach this technique to their students, resistance toward change often arises. This barrier can become a significant obstacle to faculty members adopting innovative teaching strategies (Scarbez et al., 2011). In addition to the potential barrier brought about changing how assessments are conducted, Anderson and Rogan (2011) warned that for faculty to become comfortable users of more advanced technology, they must be willing to learn a new pedagogical delivery system and hence, have their lack of knowledge exposed.

For dental hygiene faculty in the program I studied, the move to paperless is an enormous change being forced upon them and one that could clearly make faculty members resistant and uncomfortable and yet they must change or potentially lose their positions. Although the move to paperless technology is not the problem of this study, it has a large effect on the timeliness for closing the gap between current and best assessment practices. Additionally, the move to new technology could affect faculty attitudes toward any other changes.

There was also a need to explore methods that could lead to acceptance of a change in how faculty members teach and assess clinical skills (Tax, Doucette, Neish, Maillet, 2011). Levett-Jones et al. (2011) and Licari et al. (2008) emphasized that clinical assessments should focus on learning. Kuh (2012) argued that faculty should view assessments as a means for improving student learning and not as an anonymous philosopher stated, “An attempt by social scientists to force the rest of us to adopt their disciplinary approach to the world” (as cited in Kuh, 2012, p. 4). Therefore, faculty should be engaged in the process of developing the assessments they will use in the clinical setting.

In order to increase faculty involvement in assessment work, University of Technology Sydney (UTS; n.d.) implemented a model titled Plan, Do, Review, Improve (PDRI) among its college systems, which included faculty development. At UTS, faculty committees analyzed student surveys in order to make plans to improve student learning. UTS educators suggested faculty assess several competencies within one assessment, making it more like practice situations students will encounter in their professions. UTS concluded that fewer but more comprehensive assessments allow for less faculty time on assessment.

Along with apprehensions regarding time spent developing assessments, instructors often hold different and often controversial opinions regarding how to best design and carry out performance skills assessments (Trullen & Rodriguez, 2013). The need to appreciate faculty members’ perceptions of assessment along with their views towards measuring clinical competence is evidenced in the writings of other health care

programs working through the same issues as the program I studied. Nursing and other medical education programs also struggle with many of the same challenges I have discussed for determining skill competence in students (Hatfield & Lovegrove, 2012; Hauer et al., 2011; Kogan et al., 2012). Educators who are skilled professionals without formal training in education are perhaps being asked to do something that they are not trained to do (McAndrew et al., 2012). Learning about faculty perceptions may help in the education of faculty who want to be both skilled professionals and excellent educators who understand and perform quality assessments.

Suskie's Model of Good Assessment

Suskie (2013) created a four-dimensional model of “good” assessment. The model looks at characteristics of good-quality assessment results, and it also examines characteristics of good assessment processes that engage faculty. Suskie focused on dimensions of authentic assessment that are (a) useful and used, (b) from both outside and inside, (c) realistically accurate and provide honest results, and (d) clear and easy to understand. Although there are common themes around assessment, without faculty engagement in the process, it remains questionable if instructors would be prepared to use assessments to further student learning.

The Local Problem

As the faculty discuss best practices in assessment, it will be necessary that one format for clinical assessment work for all clinical courses. Suskie (2013) suggested that for faculty to move forward with assessment practices, the faculty need to a) understand that what they learn from assessment will be used to make important decisions, b) be

involved with defining goals for assessment including what success looks like, and c) evaluate learning with assessments that are clearly written and understood. The above dimensions for assessment may be what it takes for faculty to willingly and effectively change how they assess.

The dental hygiene program being studied will need to make efforts to design all clinical assessments based on best practices. The faculty work should take place prior to implementing the assessment processes into the axiUm management system. A study of what faculty perceive to be best practices in clinical assessments could result in a more informed process of implementation than expecting the faculty to buy into a change they had no part in creating. Therefore, during the interviews, I took into consideration the knowledge and practice of adult learning theory when faculty members mentioned the fear of change in technology. When faculty members included this information in their interviews, I asked what it was that drove their concerns.

Although there are a variety of theories regarding change, one that was useful for the type of problem I studied was Rogers's Diffusion of Innovations theory. Drape et al. (2013) applied Rogers's Diffusion of Innovations theory by using it as a model to study faculty members' integration of technology into their courses. Rogers (as cited in Drape et al., 2013, p. 24) defined diffusion as "the process by which an innovation is communicated through certain channels over time among the members of a social system." Rogers further defined innovation as the "process through which an individual (or other decision-making unit) passes from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of

the new idea and to confirmation of this decision” (as cited in Drape et al., 2013, p. 24). Rogers’s theory for change supports Knowles’s adult learning concepts. Understanding Rogers’s theory and Knowles’s learning concepts helped me relate to the participants in my study.

Learning new technology can take time away from faculty members’ already busy days. Drape et al. (2013) stated that faculty often reject a new technology due to the amount of time it takes to learn how to use it. Drape et al. also mentioned how intimidating new technology can be for faculty, particularly if they perceive the new technology as being too difficult to understand. The risk of exposing faculty members’ lack of knowledge regarding assessments, at the same time they are exposing a lack of knowledge in using paperless or digital technology, could affect faculty perceptions of best practices. Therefore, the need for me to conduct this study keeping adult learning theory in mind was paramount.

There are many changes in the dental hygiene program all happening simultaneously. Therefore, I needed to lead the effort towards closing the gap in assessment practices by consciously applying Knowles’ concepts for how adults learn. To solve the problem, I worked collaboratively and thoughtfully with dental hygiene lead and adjunct clinical faculty to understand their perceptions of best practices in clinical assessments. From there, I used this knowledge to create a detailed report to the dean outlining how to help faculty design clinical assessments that are based on best practices. The result will be positive social change as the faculty develop confidence in clinical skills assessment and the institution possesses evidence of students learning dental

hygiene clinical skills. Further, the program will graduate, and employers will hire, skilled dental hygienists who provide a high quality standard of care to their patients.

Implications

Dental hygiene and other health care educators could benefit from the findings of a study exploring faculty perceptions in best practices in assessment. Particularly, faculty leaders could benefit from this study's focus on clinical assessment and the attitudes of faculty as they are required to change how they assess students' clinical skills.

Implications from this study should result in a detailed report to the dean of the business and health sciences unit, stating how the dental hygiene program's faculty will ameliorate the problems with their clinical assessments. It is also conceivable that the findings of a project study on best practices in clinical assessment could lead to parameters for the development of a learning module or workshop on how to design clearly understood, reliable, and valid clinical assessments that align with paperless management systems.

The college where I conducted this study has nursing, medical radiography, pharmacology, phlebotomy, and medical assisting programs, all of which are implementing the use of paperless technology into their program's curriculum. Therefore, the findings from my study may be of interest to other health care programs in the college. Because the findings led to the considerations for development of clinical assessments based on best practices, the findings will be offered to all health care programs in the college where the study is taking place. Along with health care programs, the data I gathered from this study yielded findings that could be used to benefit all areas of study that require a skills component.

The implications from the findings for developing reliable and valid clinical assessments include the ability to assist other programs' faculty within my college as well as other schools' faculty members to work collaboratively to develop effective clinical evaluation instruments that are based on best practices. Thus, it is possible to result in data that can be used to construct clinical evaluation forms that are clearly stated, consistent in design, based on best practices, and shared with other health care and career programs.

Summary

A problem existed in a dental hygiene program due to inconsistencies in assessment tools that clinical dental hygiene faculty used to evaluate students' competencies in their clinical courses. Clinical skills assessments were poorly written and did not adhere to best practices in assessment. The problems present in this local setting indicated a significant gap in the current clinical assessment procedures and those following guidelines for best practices. To close this gap in practice and promote positive social change, I needed more information regarding current practices in this local setting. The dean of business and health sciences had asked me to provide a detailed report based on my findings that will lead to a solution of the problem. Additionally, due to the implementation of the paperless management system, axiUm, and the timeline to its operation, faculty must design clearly understood and consistent assessments by Fall Quarter 2015. The dental hygiene program I studied is a competency-based program, where students learn to perform specific tasks and skills they will be using in the practice of dental hygiene. A crucial part of competency-based education is written competency

statements that define skills students will be able to perform after learning has occurred. Therefore, dental hygiene skills must be accurately assessed. This project was dependent on faculty exploring the assessment tools they use for determining if students are competent to perform dental hygiene skills in a practice setting. By investigating this dental hygiene program and performing a case study, I developed a detailed report for administration regarding how to amend the problem. Furthermore, the report provides clear ideas for the development of a learning module or workshop that other educational settings could acquire as they develop their own assessment tools.

The next section focuses on the research methodology of this project study. I held one-on-one interviews in order to deeply understand the perceptions of current lead and adjunct faculty in a dental hygiene program regarding best practices in assessment. I also performed a document analysis of the various assessment forms faculty use to assess students in the clinic they lead. Closing the gap in practice between the current clinical assessment procedures and those following guidelines for best practices will effect positive social change as faculty gain confidence in assessment and graduates of this particular dental hygiene program provide greater quality patient care.

Section 2: The Methodology

Introduction

The problem in a community college dental hygiene program was that clinical assessments were identified as being inconsistent in grading scales, design, and clarity; therefore, assessments were inconsistent with what Hutchings et al. (2013), Kallison and Cohen (2010), and Suskie (2013) identified as best practices in assessment. The depth of this clinical assessment problem reached into 16 courses taught over seven quarters. The problems present in this local setting indicated a significant gap in the current clinical assessment procedures and those following guidelines for best practices as presented in current literature. To address this problem, I conducted a case study. Case studies are conducted when the researcher is searching for greater meaning and understanding about the topic to be explored. Stake (1995) stated that a case study should be conducted when the researcher is interested in how people function in ordinary ways and without any preconceived notions. In case studies, the researcher collects, analyzes, and makes meaning of the data (Merriam, 2009). I chose to conduct a case study after considering other methods for conducting research such as program evaluation. My research question, which focused on faculty perceptions and attitudes toward best practices in assessment, aligned with the qualities yielded by case study research.

At the time of this study, the dental hygiene program was implementing a paperless management system. This change required the program's dental hygiene faculty members to change from paper and pencil to an electronic means for evaluating clinical skills and collecting assessment data. The case study was, therefore, planned for a

time that aligned with faculty experiencing a change in how they would educate students and assess student learning. Moreover, this spoke to the immediacy of the need.

I chose a case study methodology for this research study because I was interested in learning about the experiences of faculty involved with clinical skills assessments in a dental hygiene program. This timeframe, space, and organizational structure are what Stake (2000) and Creswell (2013) referred to as a *bounded system*. Although there are multiple opinions as to when to use a case study, Merriam (2009) suggested that the most significant feature of a case study is the case takes place in a bounded system. Stake (1995) defined the bounded system as an integrated system or object with parts and boundaries. Stake further stated that the parts do not have to be working well together, thus making a program or people good cases to study.

Finally, I selected a case study methodology because it has “value in refining theory and suggesting complexities for further investigation” as well as encouraging “limits of generalizability” (Stake, 2000, p. 448). In the following section, I define the research design and approach, the participants in the study, ethical considerations, data collection and analysis, and procedures to employ with discrepant cases.

Project Study Design and Approach

In order to gain a complete and deep understanding of dental hygiene faculty involved in clinical assessments, the project study design and approach I used was a case study. A case study, as Lodico et al. (2010) contended, uses an inductive and descriptive or “bottom-up” approach. This inductive and descriptive approach led me to a comprehensive understanding of faculty perceptions regarding best practices in

assessment. The inductive approach to data collection involved interviews and document analysis of the phenomena being studied. The descriptive approach to my study allowed me to comprehend, with a deeper understanding than with a quantitative study, what faculty members perceived to be best practices in dental hygiene clinical skills assessment. Merriam (2009) stated that a descriptive case study means the results of the study will provide a rich or thick description of the entity being studied. An intrinsic design aided the descriptive quality of the case study.

The intrinsic nature of a case study is another quality of case studies that led me to a greater understanding of faculty perceptions of clinical assessments. According to Glesne (2011), the intrinsic nature allows the researcher to study a particular population of participants, in my case, the lead and adjunct clinical faculty in the college's dental hygiene program. Hancock and Algozzine (2011) suggested conducting an intrinsic case study when the researcher is more interested in studying a specific group of individuals than creating general theories. Merriam (2009) further stressed that intrinsic case studies are conducted when the researcher has a fundamental interest in the case. For example, I had an intrinsic, or genuine, interest in the perceptions of clinical faculty regarding assessments in the dental hygiene program being studied. The phenomenon being studied was unique to this dental hygiene program's faculty in that they were tasked with recreating all of their clinical assessments for clarity and consistency. Thus, a design that was descriptive and intrinsic aligned with the purpose of deeply understanding perceptions of clinical faculty, specifically clinical faculty in a particular community college dental hygiene program setting.

An important aspect in case study research is the significance of the study taking place in a bounded system. The faculty in the dental hygiene program I studied can be classified as a bounded system. According to Merriam (2009) and Stake (1995), the boundaries would be defined as the specific program within a specific community college. Merriam stated that case studies are also described as *particularistic* when they center on a particular program. The study I conducted was, therefore, particularistic and bounded in that I focused on a single dental hygiene program.

In addition to the previous rationale, another reason a case study aligned with the purpose and research questions for this study over other methods of research was that case studies are contextual. The context of the study was a specific dental hygiene program experiencing a major change in how faculty members assessed students in clinical courses. Basic qualitative studies involving interviews are common for the type of problem I studied (Merriam, 2009).

A case study gets very close to the participants, where they are often interviewed in their natural setting (Hancock & Algozzine, 2011). The context of the dental hygiene program and the natural setting of the participants lent itself to case study research. The natural setting for the participants in this case study was the community college where the study took place.

Case studies are more often based on subjective factors such as feelings and thoughts, which was appropriate for my focus on perceptions of the dental hygiene faculty. Stake (1995) argued that the subjectivity of a case study is essential to understanding the case being studied. In order to discover perceptions of the lead clinical

dental hygiene faculty regarding clinical assessments, I needed to understand their thoughts and feelings regarding best practices in assessment. I accomplished my study using individual interviews of selected participants and document analyses, which I discuss further in subsequent sections. In recognition of the case study methodology, the next section provides important contextual information regarding the participants.

Participants

Criteria and Justification for Selecting Participants

My sample's selection was equitable, as I selected all lead clinical and four adjunct clinical faculty members as participants in my study. The adjunct participants represented each of the clinical courses taught in the program. No participants were required to participate in the interviews. Assessments varied greatly within each clinical course, which made it important to have participants from each. All participants were involved in assessing students on their clinical skills. Therefore, to better understand assessment designs that would provide the best assessment processes for this specific dental hygiene program, I explored the perceptions of best practices in assessment held by both the lead and adjunct clinical faculty.

Procedures for Gaining Access to and Relationships With Participants

At the time of this research, I was a faculty member in the dental hygiene program elected by the full-time faculty to be director. The director of the dental hygiene program is in charge of the accreditation report and ensuring the department meets CODA and NWCCU accreditation requirements. At the institution under study, I was considered a full-time faculty member with no supervisory responsibilities over faculty, contrary to

what the title may lead some to assume. As stated in the dean's and college's letters to Walden's URR (Appendices B-C), the dean of the business and health sciences program was the supervisor over the faculty in the dental hygiene department. It is the dean who conducts supervisory faculty evaluations and makes all retention decisions for faculty.

Purposeful convenience sampling worked best for conducting the project study because I was a faculty member in the same program as the faculty being studied. Convenience sampling takes into consideration the accessibility the researcher has to his or her participants (Burns & Grove, 2011). Stake (1995) stated that when a researcher is considering the sample, the most important thing to consider is the chance to learn something. By studying the clinical faculty members, I had the opportunity to learn much about faculty perceptions of best practices in assessment in order to align assessments in the clinical courses of the dental hygiene program, which was the purpose of my study.

Ethical Protection of Participants

A college research specialist provided assistance to ensure that ethical standards consistent with the project study were followed. The college's IRB requirements were such that they would contact the faculty by e-mail. The college research specialist first e-mailed the letter of invitation to all clinical faculty in the department. All faculty members agreed to participate in the project study. The research specialist randomly selected one adjunct faculty from each of the four primary clinical courses by drawing numbers out of a hat. The four courses represented included: (a) Junior Clinical Techniques, (b) Senior Clinical Techniques, (c) Restorative, and (d) Local Anesthesia/Nitrous Oxide Administration.

Following the acceptance of faculty members' participation in the case study, the research specialist sent out the Consent and Confidentiality Form (see Appendix D) and the Confidentiality Agreement (see Appendix E). Faculty members who agreed to participate were asked to participate in an individual interview. I also obtained permission from each of the study's participants to record the interviews. Additionally, I ensured that confidentiality would be maintained during the study and in the writing by never using names or direct titles. I did, however, delineate between the lead faculty and part-time faculty members. These procedures were required by the college's IRB for all research studies conducted with college faculty or staff.

In order to guarantee confidentiality during the interviews, each participant signed an agreement stating they understand the information they give me will be kept confidential. All participants know that I will keep all data on a password-protected personal computer in my home, not in my office. Additionally, I will keep all of my field notes, tape recordings, and backup computer files for 5 years locked in my desk at home, for which only I have a key and passwords.

I asked faculty participants to take part in one-on-one interviews to help capture individual perceptions on assessment, as Lodico et al. (2010) recommended. I also completed document analyses of the various clinical assessment forms. My goal was that individual faculty would reveal their knowledge and feelings about clinical assessment. Individual answers would also demonstrate a difference between what full-time and part-time faculty know and understand. The differences helped me to gain useful information regarding how faculty members would like to work through the program's assessment

practices in a learning module, workshop, or other learning experience. I realized that the interactions with faculty I interviewed might also capture perceptions and attitudes faculty are feeling as they are required to create assessments that align with each other's clinical courses.

Ethical protection of the participants in a case study also includes protecting the participants from harm. According to Merriam (2009), the fact that the researcher will be using *participants* versus *subjects* implies a willingness of the participants to be included in the study and to be actively involved. I documented that all ethical protection protocols were in place by using procedures consistent with thorough case study research design and by not exposing the participants to risk. I also gained informed consent by giving the four lead faculty and four adjunct faculty participants information about the study and informing them that participation is voluntary. Participants were told they could withdraw from the study at any time (see Appendix D).

My sample's selection was equitable, as I selected all lead clinical and four adjunct clinical faculty members as participants in my study. The adjunct participants represented each of the clinical courses taught in the program. No participants were required to participate in the interviews; participants were asked to participate knowing that it was their choice. I also ensured that there was no perceived coercion to participate; clinical faculty could choose whether to participate in this study. I asked the lead faculty to participate and randomly selected one adjunct faculty member from each of the clinical courses. If they chose not to participate, I would have randomly selected another adjunct faculty member so that each clinical course had equal representation from the full-time

lead and an adjunct instructor. By utilizing the college's research specialist and ensuring confidentiality and the choice of whether to participate, I provided ethical protection for all participants in the study.

My Role as Faculty Member, Director, and Researcher

I was a faculty member in the dental hygiene department I studied. I have been a member of the faculty since 1996. My first 10 years working for the college, I was an adjunct faculty member and also served as a full-time temporary instructor. I started as a full-time tenure track faculty member in 2006 and became a tenured professor in 2009. I was elected by the dental hygiene faculty to serve as director in 2010. As director, I am still a full-time faculty member, actively teaching in the clinic and classroom, with release time to fulfill accreditation responsibilities and without any supervisory responsibilities.

All faculty are involved in writing various sections of the self-study for CODA visits; however, as director I am in charge of organizationally and editorially ensuring that the report addresses each accreditation standard. The commission's position on assessment includes a mandate asserting that dental hygiene faculty should be consistently assessing students for the knowledge and skills that graduate dental hygienists should possess (CODA, 2012). For as long as I have been a faculty member in this program, each instructor submits the assessments they use in the clinical courses to measure student attainment of program and course outcomes as samples in the report to the CODA. As a faculty member in the dental hygiene program with release time to do accreditation work, the faculty have granted me the responsibility to simply collect the

assessments and place them in the report to CODA. As stated previously, I have neither academic nor administrative responsibility over my peers. These responsibilities are and remain vested in the college's dean. For clarification, see communication from the college's dean of the business and health sciences unit and the college's IRB (Appendices B-C).

The process I followed is termed *epoche*. Because my role as a faculty member and researcher could be biased by my direct experience with the case, as Merriam (2009) suggested, I was constantly aware of my own viewpoints around clinical assessment and best practices. According to Moustakas (1994), *epoche* is defined as:

A preparation for deriving new knowledge but also an experience in itself, a process of setting aside predilections, prejudices, predispositions, and allowing things, events, and people to enter anew into consciousness, and to look and see them again, as if for the first time. (p. 85)

Prior to the interviews, I explained to each faculty member my role as researcher being separate from my role as a college employee. I also explained to each instructor that all data would be shared with them to ensure credibility and trustworthiness.

Results

The purpose of this project study was to explore perceptions of dental hygiene faculty regarding best practices in clinical skills assessments and their use in the clinical learning environment in order to align all clinical assessment designs and practices. This case study had one overarching project study question and three supporting research questions: What is the dental hygiene faculty's perceived knowledge of best practices for

clinical assessment in a dental hygiene program? (a) What are dental hygiene faculty practices for assessing students' clinical skills and knowledge? (b) How does a dental hygiene faculty's design of clinical assessments reflect their perceptions of best practices in assessment? (c) How does a dental hygiene program use best practices in assessment to design clinical assessments that are constructed similarly among each of the clinical courses?

Patterns in the form of themes emerged from the data I collected from the interview questions and document analyses. The themes aligned with my research questions, and from this data, I was able to determine a project or response to the dean of business and health sciences that would help solve the project study problem. In this section, I will discuss the results of the case study. Although participants were selected based on their faculty role, there were also some variances, discussed below, among the faculty. The variances provided the stage for how some of the faculty may have responded.

Participant Profiles

The participants in this study were all full-time or part-time clinical faculty members in the dental hygiene program. The participants varied in terms of years working as a licensed registered dental hygienist (RDH), clinical instructor, and in private practice. The participants also varied in whether they had formal education in assessment. Table 1 includes the courses each faculty participant leads or teaches, primary skills they assess, and years' experience as a practicing RDH, at the time I conducted the study. All

participants were labeled as F1-F8 to protect their identities. Also, to aid in confidentiality, I have referred to all participants as females.

Table 1

Faculty With Courses They Teach and Career Experience

	Local Anesthesia Clinic Course (administer local anesthesia and nitrous oxide gas)	Restorative Clinic Course (administer anesthesia, place and finish amalgam and composite fillings)	Junior Clinic Course (treating mild stages of gingivitis and periodontitis) teeth cleaning, expose radiographs, administer anesthesia at introductory to developmental level of competency	Senior Clinic Course (treating moderate to severe gingivitis and periodontitis), teeth cleaning, expose radiographs, administer anesthesia at increasing advanced levels of competency
Faculty Member 1	Instructor	Lead Instructor	Instructor	
Faculty Member 2	Lead Instructor	Instructor	Instructor	
Faculty Member 3				Lead instructor
Faculty Member 4	Instructor		Lead Instructor	
Faculty Member 5	Adjunct Instructor	Adjunct Instructor		Adjunct Instructor
Faculty Member 6	Adjunct Instructor			Adjunct Instructor
Faculty Member 7	Adjunct Instructor		Adjunct Instructor	
Faculty Member 8		Adjunct Instructor		

(table continues)

	Years working as a RDH	Years teaching	Years worked as a private practice dental hygienist	Formal education in assessment
Faculty Member 1	48	30	20	No
Faculty Member 2	17	14	16	No
Faculty Member 3	34	12	26	Some
Faculty Member 4	15	5	13	Yes
Faculty Member 5	36	21	30	Yes
Faculty Member 6	20	17	14	No
Faculty Member 7	31	19	31	No
Faculty Member 8	10	6	10	No

Process Used to Generate, Gather, Record, and Keep Track of Data

Following approval by the college's IRB and Walden University's IRB, I conducted 60 to 90 minute audio taped interviews with each participant. I conducted the interviews in a comfortable conference room located in the college's Health Sciences Building. This room provided a neutral area away from the dental hygiene clinical setting and faculty offices. Interviews took place over a 2-week period between 2014 Summer and Fall Quarters. I focused the questions on each participant's knowledge, attitudes, understanding, and feelings about clinical assessments. I transcribed each interview immediately following the dialogue. When the participants discussed a particular assessment they used in their course, I took notes directly on that document as a part of

the document analysis (see Appendix F). Following transcriptions, I followed what Stake (1995) suggested regarding the process of member checking and sent each participant the notes from his or her interview when no further data would be collected from the participants. Each participant stated that the transcriptions were accurate.

Consistent with case study methodology, I interviewed participants and simultaneously conducted a document analysis of clinical assessment forms used by the participants in their clinical courses. I developed interview questions to align with Merriam's (2009) semi-structured organization by employing questions that were more open-ended than the structured interview format. Conducting semi-structured interviews allowed me to align the questions with the central research question and sub-questions, which explored faculty members' perceptions of best practices in clinical assessment and how the design of an evaluation document could reflect the faculty members' perceptions. I constructed the interview questions to be open-ended and allowed for descriptive data and personal stories about clinical assessment designs, practices, and experiences. I interviewed each faculty participant using an interview guide to conduct semi-structured interviews (see Appendix G). I used a semi-structured interview format to allow for consistency in questions while also permitting me to "build a conversation within a particular subject area, to word questions spontaneously, and to establish a conversational style" (Patton, 2002, p. 343). Patton (1990) described interviews as a means to collect data by learning from the participants what it is we cannot directly observe. For example, I was not able to observe mindsets, thoughts, and purposes or plans. I also could not observe a person's history or past actions. Patton argued that the

purpose of interviewing is to learn an individual's perspective on a topic or experience, just as I sought to learn faculty perspectives on best practices for clinical assessment.

Concurrent with the interviews, I performed a document analysis of the clinical assessment forms used in the varied clinical courses. I noted differences and similarities among the clinical designs, performance criteria, and program standards faculty employed for designing and evaluating students' clinical skills. I also distinguished the differences between full-time and adjunct clinical faculty perceptions regarding clinical assessment designs and processes as well as how the faculty used them in the course. Finally, I reflected on differences and similarities among less experienced and more experienced clinical faculty and those with education in teaching and learning.

Data Analysis

Data analysis helped me answer the research questions regarding faculty members' perceptions of best practices in clinical assessment and how the design of an evaluation document could reflect the faculty members' perceptions. The process I used to analyze data is one suggested by Reid (1992) and Stake (1995). Reid contended that "data identification divides data into analytically meaningful and easily locatable segments" (p. 126). I began the process of tracking data by using computer files indexed according to the date and role of faculty member, whether full-time lead or adjunct instructor. I used word processing to assist me in organizing the data and content. I further organized the data by what Stake suggested for analyzing data. Stake recommended the researcher code the records by combining the data according to how often a meaning appears and then searching for patterns. As Stake stated, there is no

actual beginning for analyzing the data. Following Stake's suggestions, I continually analyzed and organized the data during the collection process. I concur with Hancock and Algozzine's (2011) contentions that the descriptive quality of case study research, and the varied characteristics of the participants, enabled me to meet my goal to provide a thick description that captured the perceptions of lead and adjunct clinical faculty members in a community college dental hygiene program setting.

Systems Used for Data Analysis

To initiate the process of analyzing my data, I first transcribed the data from the interviews I recorded using the Olympus digital voice recorder WS-821. I transcribed immediately after each interview and reviewed the data. I used the tape recordings to help me continually review, analyze, and interpret the data. I also included extra time at the end of each interview for what Stake (1995) termed interpretive commentary. I used this time to ensure I captured what the interviewee meant to say when answering the questions.

In qualitative research, data analysis is circular rather than a linear process as "data collection and analysis should be a simultaneous process" (Merriam, 1998, p. 155). In this type of design, the researcher's "hunches, working hypotheses, and educated guesses direct the investigator's attention to certain data and then to refining or verifying hunches" (Merriam, 1998, p. 155). As I continued to analyze and interpret the interview and document analysis data, 19 codes came to the surface. After coding the data, four themes emerged related to my research question and sub-questions. In the following paragraphs, I describe the process I employed in detail.

Process of Analyzing

Of the various ways researchers analyze case-study data, Stake (1995) suggested that the researcher look for patterns during the review of interview data, or the researcher could code the data, sort by frequencies, and find patterns or themes in that manner. For my case, after each interview, I organized the data by participant, full-time or part-time faculty member, area of instruction (clinical course), and number of years teaching in the dental hygiene program. From there, I transcribed these data and identified 19 codes (See Appendix H).

Along with analyzing interview data, I analyzed the documents used to assess clinical skills by detailing similarities, differences, and the ways each assessment aligned with the dental hygiene program's clinical competencies. I also had clinical assessments available for the participants to use when answering questions and clarifying what they were discussing with me. Merriam (2009) stated that documents pertain to materials that exist prior to the study at hand. Analyzing current clinical assessment documents not only augmented interview data but helped interviewees explain what they were thinking or feeling. As I conducted data analysis, I consistently compared and contrasted data collected from interviews and document analysis. Stake (1995) stated that usually the significant implications for case-study research come from data that appears repeatedly in the records. I searched "for consistency within certain conditions, which we call 'correspondence'" (Stake, 1995, p. 78). According to Stake, the coding system the researcher uses should not be so complex that the terms become elusive and lost in the

system used by the researcher. By looking for repeated data among certain conditions, I kept the coding system as clear and simple to understand as possible.

From the 19 codes, I developed four themes according to what I learned. Stake continually emphasized that it is the case that the researcher is trying to understand and this is what must drive the study. In other words, it was faculty perceptions in the dental hygiene program around clinical assessment that I was interested in learning and thinking about as I analyzed the interview data. The process of coding allowed me to triangulate the data I collected from the interviews with faculty, adjunct faculty, and data analysis. Patterns in the form of themes emerged from the data I collected from the interview questions and document analyses. By implementing these methods of analysis, the themes aligned with my research questions, and from this data, I was able to determine a project that would help me solve the project-study problem.

Through participant interviews, document analysis, and reflections of the transcripts, the process of analysis was often repetitious with recurring patterns and themes that emerged from the data. As I aimed to answer the project study questions, four themes emerged in response to the study's project-study question and sub-questions. The four themes are listed in Table 2.

Table 2

Patterns, Relationships, and Themes

Theme 1	Clinical assessments should be performed in an environment conducive to learning.
	Coding: safe, stress, fear, change
Theme 2	Clinical assessments should be clearly written and communicated with well-defined and consistently-understood criteria.
	Coding: competency statements, criteria, standards, consistent, inclusion, scoring, grading, outcomes, communication
Theme 3	Instructors should be calibrated with reliable assessments.
	Coding: consistency, communication, individual/two evaluators, calibration
Theme 4	Full-time and part-time faculty would value learning collaboratively about clinical assessments in a variety of modalities.
	Coding: workshop, mentoring, calibrate, collaborate

Themes and Relationship to Theoretical Framework

The themes identified by the participants in this study follow the theoretical framework I used to support my findings. This case study was based on the work of adult learning conceptualist, Malcolm Knowles (1984) in relation to the principles of andragogy. Within Knowles's framework is the need for adults to know details about their learning as well as their need to be ready to learn (Knowles, Holton, & Swanson, 1998). Knowles et al. linked the notion that adults need to know why they are tasked with learning something new with the need for adults to be collaboratively involved in the planning and facilitating of what they need to learn. Knowles et al. also stated that as individuals mature, their readiness to learn becomes closely related to their life conditions and social roles. Readiness to learn requires the adult learner to connect the learning

situation to the realities of his or her life. The emphasis on learning, Knowles et al. argued, refers to the adult learner's need to directly apply new learning to an applicable real-life context. For adults, learning encompasses a need to problem-solve rather than only focusing on the topic being introduced or studied. The reader should note that Knowles's principles for how adults learn are woven throughout the themes that emerged from the study's data.

In the following section, I outline the four primary themes I derived from the data. Statements made by the participants are included to add validity to the study. To add context to the themes that emerged from the interviews and document analysis, during Summer Quarter 2014, the dental hygiene program's faculty were tasked with implementing the first stage of a new paperless management system, axiUm. The first stage involved the paperless check-in process for each student and patient, medical history, dental history, collection and management of fees for services, charting of existing restorations and decay, periocharting, and treatment notes. All participants mentioned the increased stress in the clinic over summer quarter due to the management system. Although this was not the problem of the study, it was closely related. The increased stress also led to evidence of Knowles's concepts for adult learning, i.e., the need to know. The next task with the paperless management system is implementing clinical skills assessments.

According to the theoretical framework as well as the themes that emerged, the task the faculty are faced with concerning clinical assessments should involve all full-time and part-time faculty in its undertaking. All faculty should work collaboratively to

facilitate their learning in a way that enhances and strengthens their knowledge of best practices in assessment. There is no going back to paper and pencil, so the need to know and readiness to learn are essential pieces in solving the problem with the assessments currently in place. The dental hygiene program does not have paperless assessments in place at this time. Therefore, results from this study will drive the design of paperless clinical skills assessments.

Themes

Each of the four themes that emerged aligned with and supported answering the research question: What is the dental hygiene faculty's perceived knowledge of best practices for clinical assessment in a dental hygiene program? Additionally, themes supported the sub-questions: (a) What are dental hygiene faculty practices for assessing students' clinical skills and knowledge? (b) How does a dental hygiene faculty's design of clinical assessments reflect their perceptions of best practices in assessment? (c) How does a dental hygiene program use best practices in assessment to design clinical assessments that are constructed similarly among each of the clinical courses?

The following discussion of the themes that emerged from interview and document analysis data includes the sub-question(s) each theme aligns with.

Theme 1: Clinical assessments should be performed without fear and undue stress for the students.

Theme 1 aligned closely with the first sub-question: What is the dental hygiene faculty's perceived knowledge of best practices for clinical assessment in a dental hygiene program? All faculty members interviewed stated that assessments, especially

formative clinical assessments, should be relaxed and as stress-free as possible. The participants often discussed personal past experiences during their own dental hygiene education. All instructors discussed a certain amount of empathy for the students that led them to stating the importance of a safe environment for students to learn. Faculty discussed their role in creating this type of learning environment. Although stress is inevitable, especially when a student is being observed performing a skill, faculty felt that they could help create and sustain a safe learning environment.

F3, F5, and F6 stated that the implementation of the paperless management system added stress to the assessment processes and to the environment. The added stress was caused by the additional time required to both learn a new system and continue to teach and assess students in the clinical environment. F6 stated, “Although the assessments are not paperless at this time, everything was taking longer to do, and faculty and students felt it.” Students earned an incomplete for the course, and faculty felt it was more the faculty’s problem than the students’ problem. Participants felt that the environment did not respect student learning and that students were feeling punished. Although the implementation of axiUm is temporary, it is how faculty continue to handle stress that has a direct effect on the learning environment.

Another means participants mentioned for a safer learning environment was to intentionally place the students at ease by purposefully being very clear about the skills and knowledge instructors are trying to impart to the students. F4 mentioned her own stress in the role of clinical instructor and how this stress can add to the stressful environments learners feel. Participants mentioned the importance of faculty

understanding different learning styles and particularly the learning styles of the individual students working to attain clinical skills.

Participants also mentioned learning styles of students having an effect on the learning environment. F6 stated that students with dissimilar learning styles react differently to the stress of being observed and evaluated during a clinical skills assessment. F5 mentioned that she tries to create a safe environment by discussing with each student how they learn best. F5 stated that she communicates her support to the students at the beginning of the clinic day during the morning meetings. F3 agreed. F3 stated that communicating with students before the day begins: discussing the students' plans for the day and how she might help them, and learning what assessments each student is going to attempt that day, helps create a safe learning environment. F3 stated that this meeting helps keep her students centered on learning even when students are being assessed.

All participants stated the importance of fairness and consistency when evaluating students. When one instructor bends the rules for her group of students and other instructors hold fast to the rules, the environment becomes one of distrust. Faculty stated that there is a need to remain positive and focused on the learning experiences even during clinical assessments.

Theme 2: Clinical assessments should be clearly written and communicated with well-defined and consistently understood criteria.

The second theme to emerge aligned with the following sub-questions: How does a dental hygiene faculty's design of clinical assessments reflect their perceptions of best

practices in assessment? How does a dental hygiene program use best practices in assessment to design clinical assessments that are constructed similarly among each of the clinical courses?

Faculty often discussed communication during the interviews. This pattern pertained to comments regarding how faculty work with one another and with students. Although part-time and full-time faculty frequently mentioned communication, part-time faculty felt that lead faculty should communicate more with them. Faculty mentioned that clear communication to all clinical instructors in each clinical course should take place from the lead to the other full-time and part-time clinical faculty. Moreover, part-time faculty members mentioned they do not always feel they are notified of how assessments should take place. Part-time faculty also reported that they are often not told when there are changes to an assessment design or process. For example, F8 pointed to an assessment that I knew from the lead faculty member was formative with a score and rating scale that did not count towards the grade. F8 thought that the formative assessment counted towards the grade. The communication barrier created a misunderstanding about an assessment with someone who has been working in that particular clinic for many years. F8 also had concerns about varying standards and interpretations about a skills assessment for calibrating tear sized in rubber dams. This led her to question her own standards and her instructions to students.

Much discussion around this theme centered on the criteria that describe a skill the faculty assess. F2 stated that assessments are best when everyone understands the criteria. All faculty expressed the difficulty of judging students' clinical work without a

clear set of criteria describing the skill. F1 felt confident in her standard, but F7, on the other hand, stated that she does not know what criteria other faculty are using to assess students' skills.

Part-time faculty stated that they are not always told when changes to an assessment are put into effect. F8 stated that she often feels "out of the loop." Although all faculty mentioned that more time communicating with one another was necessary, full-time faculty did not feel it was appropriate to ask part-time faculty to come in early or stay late in order to communicate and address any misunderstandings. F2 stated that it was not fair asking adjunct faculty to come in to calibrate expectations around clinical assessments. However, as F8 stated, adjunct faculty would value time either before or after clinic to discuss assessment processes. For example, F8 pointed to an assessment form that the lead faculty member had changed stating that the instructor had forgotten to tell her about it.

Interestingly, part-time faculty participants welcomed meetings to calibrate with other instructors around clinical assessments. The part-time participants stated that they did not care whether they were compensated for their time. Full-time faculty participants did not feel that part-time faculty would be open to coming in ½ hour before clinic started.

Another pattern that emerged was around students' thought processes. Although critical thinking is assessed and listed on some of the assessment forms, it is not listed as a competency in each skill assessment. F1 felt strongly that instructors assessing clinical skills place more weight on the process of critical thinking than on the actual skill or

product. Although F3, F4, and F5 mentioned the need to evaluate critical thinking when assessing clinical skills, no other instructors stated that they felt critical thinking should be weighted more heavily than the product or skill. Because dental hygiene is competency-based, F1 argued, “We should just throw away the quality piece and grade students using only the critical thinking rubric.” In other words, F1 would rather grade on the thought process than on the final product.

Participants mentioned the subjectivity that can take place when assessing clinical skills. F1 mentioned subjectivity during assessments as leading to a need for more clarity, communication, and calibration. F1 stated that the problem with the assessment forms is that the designs of the forms are what lead to subjectivity.

Dental hygiene skills are based on dexterity, tactile sensitivity, and visual acuity. Likewise, each participant discussed the importance of student clinical skill acquisition and the complexities of assessing the attainment of these skills. Although some participants were more vocal about listing criteria than others, they all discussed the need for more criteria listed on the assessment forms. Less experienced faculty preferred more criteria be listed.

Along with listing criteria and level of learning, all participants mentioned that whatever design they decide to use, the design of clinical assessments should include consistent scoring and grading methodologies. Document analysis of clinical forms revealed a variety of scoring methods. Some assessments have two categories, some have three, and others have four. Faculty leads stated the difficulty as well as the importance of defining what actually meets the standard or does not meet the standard. For example, F4

asked, “What qualifies a pass and what does not?” Although having a middle category works for some instructors, others felt that there should be no “middle ground” between what is clinically acceptable regarding patient care and what is not. All participants stated that the faculty should meet and decide on what scoring categories all assessment forms should have to evaluate skill attainment.

Theme 2 was consistent throughout all of the interviews. F3, F4, and F5 felt strongly that using only *standard met* or *standard not met* would be the most accurate and fair means for assessing students in clinic. For example, F4 stated that a 1 - 4 rating scale (pointing to an assessment form from clinic), often times results in the instructor giving most students a “4” rating. F4 stated, “To me, the 1- 4 scale lacks meaning.” On the other hand, F2 felt strongly that there should be more than two scales for scoring. For example, *Standard Met, Standard Met With Minimal Assistance, Standard Met With Significant Assistance, Standard Not Met*. F2 added, “We need to have more criteria listed if we use only *Standard Met* versus *Standard Not Met*.” F2 pointed to areas on the clinical assessment form where more criteria could be added (see Appendix F).

In addition to consistent rating scales, all participants discussed the importance of assessing students at the level they are at in their learning. When analyzing the assessment forms, I noted that some forms had the level of learning listed. For example, some forms listed *introductory, developmental, and competent*. Other forms used different terms to describe the level of learning. For instance, one form used *introductory, developmental, and mastery*; another form used *introductory, developmental, and demonstrates integration of skills and knowledge (DISK)*.

Interview question 4 asked about the importance of including the students' stages of learning on the assessment form. The document analysis revealed that stages were sometimes included and other times not. Although each instructor stated that the stage of learning a skill should be taken into consideration when assessing a student's performance, responses varied to the extent the stage of the students' learning was taken into consideration when designing the assessment. For example, F3 pointed to one of the assessment forms that had four scoring categories at the developmental level:

(1) Standard Met, (2) Standard Met With Some Assistance, (3) Standard Met With Significant Assistance, and (4) Standard Not Met. F3 stated the problem is that no faculty member scores the same. F4 stated, "The definitions of the scoring categories and stage of learning are not clear." Two of the lead instructors stated they preferred only two scoring categories: either the standard is met or it is not. Participants expressed strong feelings about this topic. One instructor definitely felt that three categories were needed in order to provide feedback to the students. Other participants felt that as long as there is room for comments and students and faculty understand what the scoring categories mean, there would be more consistency with only two categories. Although there were differences in opinion among the participants, all participants recognized and mentioned the need for consistency.

Theme 3: Instructors should be calibrated with reliable assessments.

Theme 3 states that instructors should be calibrated with reliable assessments. Theme 3 aligned with the following sub-question: What are dental hygiene faculty practices for assessing students' clinical skills and knowledge? All participants

mentioned that calibration takes time. Full-time faculty were concerned with the time it would take for part-time faculty to calibrate during non-instructional times. Part-time faculty wanted to spend the time calibrating whether it was on a paid day or time or not. All participants stated that more communication among all instructors is needed when designing or revising assessments, calibrating, and understanding the criteria and scoring processes. F7 felt strongly that faculty should have an opportunity to calibrate as a group before grading individually. F7 preferred this to what other instructors termed the double-blind method of scoring where each instructor grades a student's clinical work individually and then compares scores. Although the resulting score is only affected by what the two instructors agree on, the adjunct faculty were uncomfortable with this, as it did not give them the opportunity to reflect on what other instructors used to come up with their clinical assessment scores. Each part-time faculty participant stated they would value more time working hands-on with other instructors rather than blindly grading a student's work without another instructor to calibrate with at the time the assessment is taking place.

Also related to this theme was the mention of intra-rater reliability. For example, F3 stated that scores could become biased by how an instructor might feel about a student on that day. F3 stated that the instructors have ways to recognize and overcome their personal biases. For example, F3 stated that when an instructor in the clinic has had a negative interaction with a student, that instructor has another instructor assess the student in order to remove any chance of being biased in his or her grading.

Theme 4: Full-time and part-time faculty would value learning collaboratively about clinical assessments in a variety of modalities.

The fourth theme that emerged from the data is that full-time and part-time faculty would value learning collaboratively about clinical assessments in a variety of modalities. Theme 4 aligned with the following sub-question: How does a dental hygiene program use best practices in assessment to design clinical assessments that are constructed similarly among each of the clinical courses? When I asked what type of education would be helpful to assess students' clinical skills with more consistency among raters, what stood out was that faculty wanted to learn collaboratively in either a workshop or meeting format with real-life situations. Confidence levels in each of the participant's ability to assess using best practices ranged from moderately confident to a lack of confidence. All instructors mentioned the value of working together with other clinical instructors to determine how he or she might assess a student's clinical skills in comparison to how other faculty would assess the same skill or product.

Although, clinical teaching experience is preferred, all of the program's clinical instructors were hired based on clinical experience and expertise, not on their ability to teach and assess clinical skills. It is only through clinical teaching at the college being studied that participants gained experience with assessing clinical skills. Part-time instructors stated that they would value more mentoring. Experienced full-time and part-time clinical instructors felt that mentoring would be important to calibrate with newer faculty. F6 stated that communicating about how to use assessments would be more useful than discussions about effective design. Part-time clinical faculty participants

mentioned that they do not receive communication on how others assess or when changes occur in the assessment designs or processes. Faculty leads mentioned that they could improve communication with part-time faculty and would appreciate more structured time to calibrate and practice together. Faculty had strong opinions about the assessments. F8, a part-time faculty member, pointed to a clinical assessment that lacked defined criteria and said, “I hate this one. I don’t know why I hate it; I would have to play with it. I don’t know how much of this weighs on their grade or how much of this even matters.” This was a common finding in my interviews with the part-time faculty. Part-time faculty all mentioned they want more communication and calibration with the other faculty members.

Full-time faculty overwhelmingly felt that a workshop would be the best way to calibrate and create more consistent assessments. However, full-time faculty did not feel as threatened by being compared to other instructors. F3 stated collaborating with another faculty member on assessments is very useful but sometimes challenging for newer faculty. Some clinical courses consistently use two instructors when assessing any skill that counts toward a grade. The full-time instructors all mentioned this strategy helping them transition from a private practice clinician to an instructor. Other instructors mentioned that this method of assessing was an opportunity to learn from each other. For example, F2 stated that she learned what to expect of introductory students by getting input from other instructors. Others felt like they were being graded themselves. F4 added that it depends on whom you are working with and shared that no one wants to look incompetent in front of another instructor or students. F4 felt that a workshop that

allowed time to work with new and seasoned instructors would be an excellent opportunity to calibrate in a safe environment. F7 stated that it is important to make it okay for faculty to disagree and learn from each other.

As an adjunct instructor, F6 also felt a workshop would work well as long as everyone is on the same “learning field.” F6 further elaborated stating that it had to be a safe learning environment for instructors to share ideas. All participants mentioned that a time to learn, communicate, develop criteria, and share together would be valued. F1 contended that faculty should get together and use the assessment instruments in order to calibrate. F1 also stated that a workshop to learn the theory behind assessment would benefit the instructors, especially those who have never participated in this form of faculty development. F1 stated, “I like group work where everybody is in the group and all looking at the same thing, discussing it, talking about it, figuring out what a *standard met* looks like. Like in clinic, how smooth is smooth?” Statements such as this quote from F1 were a constant theme during the interviews.

F8 also mentioned a workshop and the importance of all the clinical courses working together. F8 stated that it would be nice to see what happens in junior and senior clinic, restorative, and anesthesia in terms of assessing and grading. F8 stated that time to look at the different assessment forms and calibrate on definitions, scoring categories, and learning stages would be a benefit to all instructors, not just part-time faculty. F8 added that part-time instructors work at other jobs in the community and are not able to participate in the weekly team meetings.

In summary, all instructor participants, whether full-time or part-time, stated that working together, whether in a workshop or a regular meeting, would help faculty be on the same page increasing the learning and acquisition of students' skills. Collaboration also supports best practices in assessment processes.

Evidence of Quality

The evidence of quality confirms a credible project study. Guba and Lincoln (1989) developed a set of criterion called the "trustworthy criteria" that included the following categories: credibility, transferability, dependability, and confirmability (p. 245). Creswell (2013) stated these categories are widely accepted as rigorous criteria to ensure trustworthy qualitative research. Guba and Lincoln referred to credibility as ensuring that the techniques used by qualitative researchers accurately describe the participants' experiences. Below, I have listed those techniques that I employed to ensure my findings are credible.

Credibility

Credibility is important to establish in a case study. According to Stake (2000), case-study researchers study "both what is common and what is particular about the case, but the end result regularly presents something unique" (Stake, 2000, p. 438). I conducted in-depth interviews with both full-time and part-time faculty as well as document analyses to answer the project-study questions. Each faculty member represented one of the four primary clinical courses in the dental hygiene program: Clinical Techniques I, Clinical Techniques, II, Restorative, and Local Anesthesia/Nitrous Oxide Sedation. The sources of data collection allowed me to triangulate the data. According to Stake (1995),

triangulation of data provides a means for the researcher to “minimize misrepresentation and misunderstanding” (p. 109). Likewise, triangulation adds to the credibility of a case study.

Multiple sources of evidence are crucial for demonstrating credibility in a case study, as credibility deals with how the data line up with reality (Merriam, 2009). Merriam stated that because reality can never be grasped due to its symbolic nature, researchers must assure their consumers that the findings are credible based on the data obtained. I accounted for credibility throughout the study by verifying the quality of data before, during, and at the end of the study. I established credibility by comparing, contrasting, and checking my data continuously based on the purposes and circumstances of the project study. As Lodico et al. (2010) suggested case-study researchers do, I triangulated my interview data from full-time and adjunct instructors with the analysis of clinical assessment forms in order to increase the credibility of my findings and to fully capture the complexity of the case.

Other means I employed to ensure credibility of my findings were the verification processes known as peer review and member checking. Merriam (2009) defined peer review as having a discussion with a colleague who is not involved in the study regarding my findings and possible interpretations. An employee in the college’s IRB office who is a research, reporting, and data integrity professional agreed to be a peer reviewer. The research analyst who reviewed the study does not know the faculty in the dental hygiene program. The research professional evaluated the process of my study, data, coding, themes, and analysis for logical associations. This research specialist assessed the

association and interpretation of my findings with the data I collected, as suggested by Merriam. This process further affirmed the themes that emerged from the data.

I utilized member checking by providing each participant with my findings for their own data, having each review the findings, and providing each participant an opportunity to discuss the findings for their data with me. Merriam (2009) stated that member checking would help the researcher achieve credibility by illustrating to the participants that the researcher has thoroughly worked to analyze and interpret the data from their perspectives and not that of the researcher. Therefore, through peer review and member checking, I ensured the credibility of my findings.

Transferability

Transferability is the second criteria, supported by Guba and Lincoln (1989). It is important to acknowledge that the goal of a qualitative project study is not to generalize, as is the goal of quantitative research; rather, the goal of this case study was to provide a thick description of the case being studied. Thus, transferability is concerned with the readers of this study who may be able to determine whether the findings are relevant to their own educational context.

Dependability

The third criterion referred to by Guba and Lincoln (1989), dependability, refers to consistency in following stated methods throughout the process of conducting the project study. To demonstrate dependability to the reader, I clarified each step of the project study's proposal with my committee members. Additionally, I did not have to modify my original design at any stage of the project study.

Confirmability

Finally, confirmability is important to the trustworthiness of a study. This criterion ensures the data and findings of the project study come from the project study and not from my own interpretations. I documented my own potential biases and have kept all of my data, so that if anyone were interested in viewing my work and understanding how I interpreted the data I collected, they could easily do so.

Outcomes

The problem that this project study is based on is that the clinical assessment designs and processes in a dental hygiene program are not based on best practices in assessment. I constructed the white paper required of me by the dean around the project study question: What is the dental hygiene faculty's perceived knowledge of best practices for clinical assessment in a dental hygiene program? Deriving from this original question, sub-questions are as follows:

- What are dental hygiene faculty practices for assessing students' clinical skills and knowledge?
- How does a dental hygiene faculty's design of clinical assessments reflect their perceptions of best practices in assessment?
- How does a dental hygiene program use best practices in assessment to design clinical assessments that are constructed similarly among each of the clinical courses?

The qualitative data from full-time and part-time faculty participants and document analysis provided an extensive outlook on faculty perspectives based on the

research questions. I compared the responses to interview questions between full-time and part-time faculty participants, noting the differences as well as similarities in their responses and outlooks toward the topic of clinical assessments. The outcomes address the processes that faculty came up with when answering interview questions. The outcomes also align with best practices in assessment. Additionally, the outcomes include what participants stated that they would like to do to learn more about clinical assessments using best practices as well as how they thought the assessment designs and processes should be determined. The following synthesis reveals the project deliverable of the project study.

The Project Deliverable as an Outcome of the Results

The results of the project study led me to create a position paper as the project deliverable. I based this decision on my study's findings. The problem for this project study was that faculty in the dental hygiene program where I also work as a faculty member were measuring student learning in clinical courses with assessments that were not based on what the literature defines as best practices in assessment. The faculty participants realized this as a problem. In fact, all faculty participants stated interest in working together on assessment designs and processes in order to align assessments with best practices. Faculty varied in their knowledge of best practices in assessment, yet every faculty member recognized that there was work to be done. Whether faculty recognized their responses and frustrations as leading to best practices or not is not the intended outcome of this study. Rather, faculty are desiring to calibrate, communicate, and design assessments that are consistent with one another's and with best practices.

These problems and solutions are clearly outlined in the position paper written for the dean of business and health sciences.

A major concern faculty mentioned, and one that I included in the position paper, is that the criteria and stage of learning is more often than not, left unstated on assessment forms. Further, different methods for evaluating students seemingly created inconsistencies in how faculty assessed student learning of skills. This led to subjectivity and a lack of confidence in the faculty members' evaluative processes. Instead, faculty would prefer criteria and stage of learning to be clearly spelled out and listed as a part of the assessment. For example, rather than having an assessment state "Debridement" with *1-4 or Standard Met, Standard Not Met*, it should be stated at what level of learning the student is being assessed and what the criteria include for measuring the outcome. Many of the participants suggested informal meetings before or after clinic days as a means to calibrate with one another. However, what predominantly emerged from the data were themes targeted at working together in a group setting, where everyone could have input on how the assessments are designed and carried out. The project deliverable, the position paper, supports these findings and addresses how to implement best practices into the clinical courses' assessment processes.

Procedures for Dealing With Discrepant Cases

Discrepant cases are defined as those cases that are contradictory to the patterns and themes I discovered through my research. Through peer review and member checking, I purposefully examined the data for discrepancies that were an exception to patterns or that alter patterns found in the data. I asked the participants to check the

accuracy of information to ensure the information I reported was correct. After member checking and peer evaluation, there were no identifiable discrepant cases

Conclusion

This section included the methodology I employed to study lead and adjunct clinical faculty members who are being mandated to change the way they have assessed students' clinical skills in a dental hygiene program. The program's clinical assessments were inconsistent in design, grading scales, methods, and processes. Based on assessment literature, the means for assessing clinical skills in the dental hygiene program were not consistent with best practices. I conducted a case study in order to gain a deeper understanding of faculty perceptions regarding best practices in assessment. The case study design included individual interviews with participants who are full-time leads and adjunct clinical faculty and document analysis of the current assessment documents. I conducted the study using purposeful convenience sampling. Following the gathering of data, I analyzed the data by coding and developing of common themes. I used triangulation, member checking, and peer review to establish the credibility and trustworthiness of the project study findings. The results led to an understanding of faculty perceptions of best practices in assessment, thereby helping faculty develop clearly and consistently designed clinical assessments. Closing this gap in the current clinical assessment procedures and those following guidelines for best practices will lead to positive social change as instructors are able to assess and provide instructional feedback in a consistent and empirically supported manner. The program will graduate

dental hygiene practitioners who are educated and assessed using consistent methods and who are, therefore, able to provide a higher quality of patient care.

Section 3: The Project

Introduction

The project for this research study is a position paper written to the dean of business and health sciences. The dean will share the paper with administration at a community college and use it to lead dental hygiene faculty in solving the problem with their clinical assessments. The position paper provides a brief program description, a background of the program's problem, and recommendations for strategies to address the problem. The purpose of this position paper is to the following: (a) respond to a request from the dean of business and health sciences, who will inform other community college leadership of the project study findings, (b) incorporate current literature related to the project study's outcomes, and (c) inform the dean regarding recommendations aimed at how to implement best practices in clinical assessment in a community college dental hygiene program.

Goal of the Project

The goal of the project study was a detailed position paper written to the dean addressing the need to restructure clinical assessment practices throughout the dental hygiene program's clinical courses. In the position paper, I explain to the dean the extent of the problem and its impact on the ongoing success of the dental hygiene program. The position paper also includes literature on best practices for clinical assessments and recommendations for how the dental hygiene faculty can implement changes to solve the program's problems with assessment practices. The position paper to the dean highlights issues around best practices in clinical assessment and is supported by literature on

clinical skills assessment. For example, the paper encompasses the need for creating reliable designs with clearly understood criteria as well as consistent scoring and grading methods. The position paper addresses consistency, calibration, and collaboration, all findings from the interviews, document analysis, and literature on best practices in clinical assessment.

The findings from the case study are included in Section 2. Section 2 also includes documentation of data, how I analyzed the data, and the processes used to validate my findings. Although there are a variety of means for documenting a researcher's findings, both Merriam (2009) and Creswell (2012) suggested that researchers document their findings in a research report. The research report typically incorporates findings and implications (Creswell, 2012; Hancock & Algozzine, 2011; Stake, 1995). The findings reported in Section 2 of this project study are the basis for the project that resulted from this study.

Creswell (2012), Hancock and Algozzine (2011), Merriam (2009), and Stake (1995) stressed the need for researchers to determine who their audience will be and what that audience would want to know. The audience for this project study is the leadership of the college. I used the project findings to write a position paper informing the dean of strategies the dental hygiene faculty can take to create consistently designed clinical assessment forms and processes. The strategies included in the paper provide direction for the faculty to follow when aligning clinical assessments with best practices.

Rationale for the Project Genre

As I reviewed my project study findings, I determined that a position paper, also referred to in the literature as a white paper, would be the appropriate project for my study. White papers were originally developed as an instrument for the government to defend a policy standpoint (Stelzner, 2010). According to Archbald (2008), creating a report from a project study in the form of a position paper would provide a vehicle to present specific solutions to the project study problem. Archbald argued that although there are different reasons for creating a position paper, the position one takes must be informed through the project study's data and analysis. My position paper will be presented to the dean of business and health sciences and other leadership at the college. The dean will then have an enhanced outlook on the problem in order to make suggestions for action to the dental hygiene faculty.

The literature describing position papers supported the choice I made for using this genre as the project for my study. Stelzner (2010) suggested that white papers be strategically created to position support for an idea. Powell (2012) described the use of a position paper as a production of "professional communication competencies that can be deployed in a variety of settings" (p. 97). Although Stelzner described the white paper as a written report, Powell argued that the skills needed to produce a white paper can include media to visualize that your position is vital to addressing the problem at hand. Both Stelzner and Powell agreed that the most important requisite to writing a position paper is to understand the nature of one's audience or readers. According to Stelzner,

“Instant affinity is key” (p. 2). The requisites for a position paper supported the reasoning for this project study’s genre.

Literature Review Related to Genre

Position papers are used in a variety of settings related to education and health. Position papers often provide a method for oral health care providers and educators to learn about research concerning issues in the field. For example, Little, Jacobson, and Lockhart (2010) wrote a position paper in response to a proposal made by the American Academy of Orthopedic Surgeons (AAOS). The AAOS published a statement recommending that oral health care clinicians prescribe antibiotic prophylaxis for all patients with or at risk of developing bisphosphonate-associated osteonecrosis (BON) prior to any invasive dental treatment. Bisphosphonates are a group of medications frequently used to treat osteoporosis. This recommendation includes the procedures dental hygienists perform. The American Academy of Oral Medicine (AAOM) provided a research-based response to this recommendation followed by recommendations made to oral health practitioners. Likewise, the AAOM made a recommendation through a position paper addressing the prevention of bisphosphonate-associated osteonecrosis (BON) or bone death, and the administration of treatment for dental patients taking bisphosphonates (Migliorati et al., 2005). The AAOM researched the topic and provided recommendations for oral health care providers, who are treating patients with or at risk for BON. Then again, in 2014, the American Association of Oral and Maxillofacial Surgeons constructed a position paper stating that they recommend changing the nomenclature of bisphosphonate-related osteonecrosis of the jaw (BRONJ) to

medication-related osteonecrosis of the jaw (MRONJ; Ruggiero & Dodson, 2014). The report listed justifications for changing the name due to the growing number of cases involving the jaws of patients taking this type of medication. Position papers of this nature have been common in health care literature.

I trust that for the community college dean, a position paper based on case study data is the pertinent way to communicate my research findings. The dean prefers communication that is concise and without unnecessary information. Therefore, I chose a position paper as the genre most appropriate for this doctoral project. The position paper allows me to tie the four themes that emerged from the study to the three goals outlined in this position paper. This genre provided the means to outline the problem, summarize the findings, and make recommendations based on the findings.

Although developing materials for professional development could be a genre for this study, professional development would not be as comprehensive as what was requested by the dean of business and health sciences in his request for information leading to a solution. A curriculum plan would not encompass the scope of this project, as the problem is related to clinical assessments in each of the clinical courses. As a result, other genres would not adequately address the research problem related to the dental hygiene program's clinical assessments.

Addressing the Problem Through a Position Paper

Four themes emerged from the project study interviews and document analysis; the four themes correspond to the outcomes of the project study. Based on the themes and outcomes, I developed four strategies for addressing the problem. I then conducted a

thorough review of the literature related to the project outcomes and strategies. The literature review is written using the strategies as subheadings. I have also included an explanation of the conceptual framework used to guide this study. The genre of a position paper was the most relevant method to address the project study problem and questions.

There were several reasons from the literature that supported a position paper as the project that would be most appropriate based on the findings of the study. Powell (2012) suggested applying “Grunig’s situational theory” to position papers (p. 97). Grunig argued that people will take the time to listen and read the position someone proposes only when they feel that what they read will be relevant to their individual or group cause (Kim & Grunig, 2012). Kim and Grunig (2012) supported the notion that writers should communicate to their specific audience rather than try to please as many people as possible. Kim and Grunig defined trying to please the majority as a “blind pursuit” that will, as the name implies, fail. Hampel and Kleine-Kracht (1995) stated that the purpose of position papers includes they be both relevant and practical within the organization they are written for. The position paper is composed of the themes that emerged from the project study participants. Furthermore, the position is relevant and practical within the dental hygiene program and the institution for which it is written. As Archbald (2010) stated, position papers are used to present information that can be used to make decisions within the institution. Therefore, I will use the position paper to present strategies to make decisions regarding the process and design of clinical assessments in the dental hygiene program.

The search of the literature included reading printed and electronic books and journal articles. I conducted an extensive search of the databases within the Walden University library. These resources provided me with the information required for the position paper, which is the project for this study. I conducted a broad search using the key words from the four themes, outcomes, and strategies. The search terms included assessment best practices, dental hygiene student clinical assessments, dental student clinical assessments, medical student clinical assessment, skills assessment, learning environments, communication and faculty, adjunct faculty, part-time faculty, faculty development, professional development, teaching and learning, faculty mentoring, faculty calibration. Search terms also included scoring methodologies, grading methodologies, testing processes, position papers, and white papers. Licari et al. (2008) authored an article that specifically addressed the design of clinical assessment forms and is often referred to in recent literature regarding dental assessment processes. Therefore, although it is an older article, the information presented applied to the problem in the dental hygiene program. The next section suggests strategies, based on the project study's themes, for faculty to make decisions regarding the process and design of clinical assessments in the dental hygiene program.

Strategy 1: Create a safe learning environment.

This strategy is based on the theme: Clinical assessments should be performed in an environment conducive to learning. Clinical assessments are a part of the daily learning activities in the dental hygiene program. Henning, Shulruf, Hawken, and Pinnock (2011) described this concern in medical education as a competition for

resources. In other words, the clinical component in medical or dental education is often thought of as a clinical service rather than a means for student learning. This competition can lead to tension in the learning environment. There are other reasons the learning environment of clinical courses should be taken into consideration. Bishop, Caston, and King (2014) stated that the environment for learning should include an environment that supports student's self-assessment of their skills and the learning that accompanies self-assessment. Furthermore, Bishop et al. stated that faculty must teach students these self-assessment skills for an environment of learning to ensue. Van Hell, Kuks, Borleefs, and Cohen-Schotanus (2011) stressed the importance of the faculty creating a safe learning environment by understanding how students learn, portraying this to the learners, and understanding the stress of transitioning from a preclinical learning environment to working with actual patients.

There are also different stages of learning that need to be considered when creating a safe learning environment. Van Hell et al. (2011) argued that the greatest stress on medical students is when they transition from preclinical to clinical training. Likewise, in preclinical dental hygiene courses, students practice on dentoforms (sets of teeth connected to dental chairs simulating real mouths) and on each other. Dental hygiene students, in the program being studied, transition to actual patients in their fifth week of the second quarter. Van Hell et al. stated that medical students described the transition from preclinic to clinic as a time when they felt unsure and incompetent when performing the easiest of procedures. To address this stress, Van Hell et al. suggested faculty look at the high workload and expectations of students at this time in their learning. Dental

hygiene students also carry an extremely high workload with didactic and clinical courses consuming at least 40 hours a week at the school. No matter the stage of learning, exhausted students will only add stress to an already stressful environment.

Dental hygiene students live with the fear of making mistakes whether being assessed while working on dentofoms or treating patients. One faculty participant mentioned that the fear the student often has of making mistakes, even while being assessed formatively, adds to a stressful clinical environment. Bishop et al. (2014) argued that the environment should support making mistakes, as this is the way people learn. Bishop et al. suggested that faculty focus on the first day of class to set the stage for a safe learning environment. Guadagnoli, Morin, and Dubrowski (2012) added that the level of stress in the environment should change as the students gain more clinical experience. This is a concept the faculty could take into consideration when assessing the students in the clinical courses. Faculty could purposely create an environment with less stress during early clinical courses and then gradually increase the stress to simulate the workplace. Guadagnoli et al. reported that the criteria for the environment should be summarized on the assessment form and that the environment be challenging “in order to optimize learning rather than to optimize practice success” (p. 452).

Although students and administration often hold faculty accountable for the learning environment, Denial, Nehmad, and Appel (2011) placed the responsibility for the environment on the student. Denial et al. stated that it is the student’s responsibility to familiarize themselves with the environment and the assessment criteria. Denial et al. also argued that students should be responsible for practicing and maintaining their clinical

skills in order to be in control of their own environment. As faculty focus on a safe environment, they should consider focusing on first day activities, transition points, and the criteria on each assessment form.

Strategy 2: Design assessments with stated criteria that are consistent and clear.

This strategy supports the theme: Clinical assessments should be clearly written and communicated with well-defined and consistently understood criteria. Clinical learning is often discussed in medical education literature. The concerns are similar among health care fields requiring a clinical component. Henning, Shulruf, Hawken, and Pinnock (2011) conducted a study of student perceptions around the clinical learning environment. Henning et al. stated that medical students stated a need for consistency of teaching and assessments throughout their clinical courses. Specifically, the students in the study discussed a need for more clarity in objectives and greater consistency in how assessments were conducted. Henning et al. suggested, “Clinical assessments can be made more consistent if they were monitored in terms of content, response process, internal consistency, and relationship to established criteria and intended outcomes” (p. 45). Students stated a need for grading criteria that was consistent and clear. Although students reported that they wanted fewer assessments, they also stated a need for more formative assessments (Henning et al., 2011).

Licari et al. (2008) stated that criteria written for clinical assessment forms be divided into three categories: (a) Validity through establishing valid criteria, (b) reliability by establishing format, and (c) reliability established through clarity. Jelovsek, Kow, and Diwadkar (2013) conducted a study on tools to measure medical surgical

students' psychomotor skills' learning. Jelovsek et al. emphasized the importance of criterion-related validity. Jelovsek et al. defined criterion-related validity as "the extent to which scores of the instrument are related to a criterion measure" (p. 655).

Jelovsek et al. (2013) and Licari et al. (2008) emphasized the importance of the evaluation tool's description of the process being assessed. Students find it helpful when using the form to learn what it is they need to know, do, and be evaluated on. Licari et al. further stated that it is appropriate to change the grading scale as students get more experienced but not to change the evaluation standard. In other words, by trying to be lenient when first assessing students' clinical work, students become confused because the standard changes.

There are several suggestions for establishing reliability in the writing of an assessment form. Licari et al. (2008) recommended that faculty use consistent terminology and that criteria be written horizontally and consistently numbered. By designing the criteria horizontally, both the educator and student can follow the criteria more easily during both the performance of the assessment and the evaluating of the product. Denial et al. (2011) added that lack of consistency could lead to added stress for students.

Whether faculty decide to use a 1-4 scoring method, *standard met* or *standard not met*, or other method, it should be consistent within all assessment forms. Licari et al. (2008) also suggested that students can develop problem solving skills when levels of performance, whether passing or not passing, are clearly written on the assessment form. Licari et al. argued that by establishing a consistent format, learners focus on the criteria

rather than trying to figure out the format for the assessment. The faculty in the dental hygiene program need to decide together how many degrees of excellence should be reported on the assessment form.

Strategy 3: Work toward ensuring clinical instructors are calibrated and that the assessments are reliable.

This strategy is based on the theme: Instructors should be calibrated with reliable assessments. In other words, for an assessment to be reliable, faculty members should be calibrated. Denial et al. (2011) added that the lack of consistency of expectations among assessments also adds to a student's stress. Tweed and Wilkinson (2012) compared diagnostic medical assessments with educational assessments. Tweed and Wilkinson argued that both circumstances require "adequate sampling and consistency between observers" (Tweed & Wilkinson, 2012, p. 299). Tweed and Wilkinson stated that with a reliable assessment, the same test results could be reproduced when performed by different clinicians, educators, or observers.

Mitchell, Anderson, Sensibaugh, and Osgood (2011) argued that educators would be more calibrated with reliable assessments if the assessors spent the time working together to develop adequate grading criteria that are stated in well-defined rubrics. On the other hand, Wilkinson et al. (2011) argued that greater reliability occurs from the combination of various assessments, rather than from specifically listing detailed criteria. Wilkinson et al. stated that educators should look for a pattern in a student's performance, rather than base competence on a specific assessment. Wilkinson et al. suggested more research should be done around the assessment system rather than the assessment tool.

Reliability and calibration support the strategy for clarity. Licari et al. (2008) argued that reliability is enhanced when faculty and students understand the instructions given on the assessment form. For example, faculty should agree on what instrument the student should use to perform a specific skill. Faculty should also reach a consensus on what observation method to use. For example, participants mentioned that during clinical assessments, some faculty watch students perform a skill on the entire mouth as listed on the assessment form, while other faculty might observe one or two teeth in a quadrant and consider that sufficient to either pass or not pass a student on a particular skill. Licari et al. also said that reliability is increased when fewer forms are employed for assessments. Moreover, Jelovsek et al. (2013) stated that the criteria should encompass the knowledge needed to perform the skill as well as the actual performance of the entire clinical task.

Participants stated that they would like more criteria listed on the assessment forms, which aligns with best practices in clinical assessments. The dental hygiene program has a combination of various assessments that have not suited the purpose of more effective assessments. As faculty discuss the reliability of the clinical assessments they use, perhaps each assessment should be designed similarly with specific criteria listed to assess each skill.

The roles of the faculty members and students are crucial for a reliable evaluation to take place. Denial et al. (2011) argued that faculty should be aware of their roles in providing clear expectations to students in every clinical situation. Equally, students should be conscious of their roles in the clinical evaluation process. Students are responsible for maintaining their clinical skills and being familiar with the learning

environment (Denial et al., 2011). Moreover, engagement of faculty and students is important to successfully implement reliable assessments.

Strategy 4: Ongoing faculty development will lead to assessments that are based on best practices.

This strategy is based on the following theme: Full-time and part-time faculty would value learning collaboratively about clinical assessments in a variety of modalities. Dental hygiene education requires that students be assessed against standards determined by the CODA (Wood et al., 2014). Wood et al. stated:

Competency-based education employs a unique component in that it measures a learner's ability to perform professional tasks similar to real-life work situations. It measures student performance against a standard as defined by written competencies. Completion of these professional tasks is dependent upon clinical skill acquisition. In dental hygiene this involves dexterity, tactile, and visual components. Clinical skill acquisition is one of the most complex aspects of dental hygiene education. Dental hygiene clinical education must respond to changes in standards of practice and care, the learners, the faculty, and federal policies regarding health care. (pp. 13-14)

Faculty development was one of the one of the significant areas for further study stated in the American Dental Hygiene Association's National Dental Hygiene Research Agenda (Johnstone-Dodge, Bowen, Calley, & Peterson, 2014). The American Dental Education Association's Strategic Directions also names as one of its key priorities the need to "Provide professional development programming and resources targeted to the

needs of new dental educators to enhance the pedagogical skills and competencies of these new members of the faculty” (Johnstone-Dodge et al., 2014, p. 1319-1320). Faculty development, although frequently discussed in the literature as *needed*, should be strategically *implemented* to help the dental hygiene faculty gain the knowledge and skills needed to conduct clinical assessments based on best practices.

Project Description

The position paper recommends strategies to design and implement clinical skills assessments based on best practices in a dental hygiene program. These recommendations surfaced from the project study findings and current literature on the outcomes. The four strategies are discussed in the position paper with the implementation information stated within the project description. In order to implement the project, I have included needed resources and support systems. I have also considered potential barriers to the execution of the project as well as potential solutions to the barriers. The implementation plan includes the roles and responsibilities of everyone involved in the process and an evaluation of the project deliverable.

Needed Resources, Existing Supports, and Potential Barriers

The four strategies outlined in the position paper require minimal financial resources. However, human resources are essential to successfully implement the strategies. There are also support systems in place for the implementation of the strategies. As with most projects that require change, potential barriers exist that could place the implementation plans at risk. In the following section, I discuss each strategy’s needed resources, existing support structures, and potential barriers.

Strategy 1: Resources needed. Creating a safe learning environment involves each faculty member, staff, administrator, and student to work together and embrace a philosophy conducive to learning. Each individual needs to establish a commitment to an environment that is safe prior to questioning the existing conditions and behaviors. While faculty need to feel safe to learn from one another, clinical instructors need to make it safe for students to learn as well. Learning from formative assessments is a key strategic move. In order for this to ensue, faculty need to learn what formative assessment means. When one faculty member considers that a formative assessment is used for grading, this belief could affect how that faculty member approaches the student.

A safe learning environment also requires commitment from the lead faculty members, so that on the first day of class, the culture of learning is discussed and established with the students and adjunct faculty members. From there, it will take commitment from the faculty, students, and staff to continually be aware of their participation in creating a safe learning environment.

Strategy 1: Existing support structures. According to the project study's results, the faculty support a safe learning environment. The college's mission and core themes also stress an environment that supports learning. Therefore, it can be assumed that the college's administration also supports a safe environment for learning.

Strategy 1: Potential barriers. Barriers to the implementation of a safe learning environment include existing personal learning philosophies. Not everyone defines a safe learning environment the same. Because faculty are responsible to only pass students who meet the competencies of a safe and competent graduate dental hygienist, there are

times that assessments will be summative and cause tension and stress for the students and faculty. Although this may feel unsafe, it is a responsibility of the faculty to only pass students who are ready to treat patients safely without continual observation. By implementing formative clinical assessments in a relaxed environment focused on learning, it is expected that the outcome will be students prepared for summative evaluations. Summative evaluations will ensure graduates who possess the abilities to skillfully and safely treat patients.

Strategy 2: Resources needed. As with Strategy 1, to design assessments with stated criteria that are consistent and clear, the resources needed are human resources. Although financial resources would be valued, they are not mandatory to successfully implement this strategy. Commitments from administration and faculty are required for designing assessments. The administration at the college values assessment processes; however, clinical assessments are not often discussed as a separate entity when talking about assessment practices. Furthermore, many faculty consider it easy to be subjective when evaluating students' clinical skills. Therefore, it will take the commitment and collaboration of all faculty, both full-time and part-time, to spend the time developing criteria for each skill being evaluated. The findings support the value the faculty would place on this endeavor.

Strategy 2: Existing support structures. Support structures involve backing from administration. Although the findings were quite clear that adjunct faculty would give time to the endeavor without being paid, the amount of time it will take to develop

all assessments with criteria should involve compensation for the time that faculty offer. As always, financial compensation depends on administration's commitment to the work.

Strategy 2: Potential barriers. Barriers include lack of finances and lack of time. The college where this study takes place is state assisted but not state supported. This means that the institution does not easily provide money to pay for this type of work. The Outcomes and Assessment Committee has limited resources that faculty may be able to draw from if approved by the dean and the committee. Moreover, many of the part-time instructors also work in private practice. The time needed to collaboratively design clinical assessments may not be possible for some of the adjunct instructors.

Strategy 3: Needed resources. Support from the college's administration is needed as faculty work toward ensuring all clinical instructors are calibrated with reliable assessments. This strategy will also require faculty and students to spend additional time with patients. The quality and commitment of faculty go hand-in-hand. Next year, the program will be hiring two new tenure track instructors to replace two faculty leads who are retiring. Although the college and program will spend resources to hire competent faculty members, it will be imperative that resources be in place to provide training for newly hired faculty leads.

Strategy 3: Existing support structures. Faculty support the idea of spending time calibrating. In clinical courses, faculty value calibration. The faculty members are also supportive of the time needed to calibrate with newly hired lead instructors. Although the college's administration supports faculty development for newly hired

instructors, it will take the dean's backing to ensure efforts are directed toward both clinical and didactic instructors.

Strategy 3: Potential barriers. Although faculty confirmed the need to calibrate, this strategy will take time during the hours faculty spend working with students as they treat patients. This can be difficult for some faculty as they are busy and focused on their group of students. As with creating a safe learning environment, faculty need to feel safe questioning one another, disagreeing, discussing, and calibrating.

Strategy 4: Needed resources. The resources needed for ongoing faculty development are perhaps the most all-encompassing needs. Although faculty development is discussed in the literature, the priority placed on it is often behind other initiatives that require resources. The dean and other administrators will appreciate faculty willing to give of their time in order to create assessments based on best practices. However, full-time faculty take a severe cut in earnings when they decide to teach and no longer work in private practice. Because of this, teaching is in the heart of the dental hygiene faculty who decide to work at the college, but they also should be compensated for their time. Faculty development in the form of workshops will need financial resources in order to compensate part-time instructors for their time. If this is not possible, faculty development can take place in departmental meetings or on a voluntary basis.

Strategy 4: Existing support structures. The dental hygiene program has much needed support from the dean of business and health sciences. The dean asked for this project to be conducted in order that clinical assessment processes be aligned with best

practices prior to implementing assessments into axiUm. The dean has supported faculty attendance at workshops both in and out of state. I am optimistic that the dean of business and health sciences and vice-president of instruction will support faculty development opportunities within the dental hygiene program.

Strategy 4: Potential barriers. Faculty development will take time to create and implement. Without the time to develop and implement workshops with authentic patients and real-life scenarios, it will not be successful. Also, faculty development may be impeded by the lack of financial resources needed to compensate faculty.

Proposals for Implementation

Each of the four strategies requires a similar timeline for implementation. The timeline reflects the work needed to implement each strategy. I have also taken into consideration the resources needed to support the implementation of these strategies. The timeline is charted in Figure 1. The implementation of each strategy will be based on the theoretical framework for this case study, Knowles's (1984) adult learning or andragogical learning processes.

Strategy 1: Creating a safe learning environment. Clinical assessment processes based on best practices require a safe environment to learn. In order to implement a safe environment, faculty will need to learn what effect they have on the learning environment. To implement this strategy, faculty will first experience working together in a safe environment. The environment will be made safe by having an open discussion around what a safe environment is. Participants acknowledged that all faculty should feel safe to learn about assessment. Additionally, faculty need to acquire

knowledge and skills to create a safe environment for students to learn and be assessed in clinic. According to the andragogical approach (Knowles et al., 2011) the learners need the following climate to learn about assessment and to implement assessment processes when working with students:

- Relaxed, trusting
- Mutually respectful
- Informal, warm
- Collaborative, supportive
- Open and authentic
- Humane (p. 115)

According to Knowles et al. (2011) a safe learning environment requires attention to the physical space. With a newly remodeled clinic, there is plenty of space between each unit, allowing faculty to work closely with one student and not be heard by others. For faculty to learn how they can further create a safe learning environment, a time when faculty can discuss strategies they can implement will need to be in place. The physical environment for such a discussion should also be thoughtfully created. According to adult learning theory, there should be plenty of room with tables that are placed in a way that encourages interactions. The college's teaching and learning center has a room that dental hygiene faculty will be able to use. Knowles et al. also suggested that the environment have resources accessible, both materialistic and human.

Students in the clinic need to have their instructors available. During clinical assessments, particularly formative, instructors should be present to explain the process,

the responses, and grading methods. For faculty to learn about assessments, they need handouts, instruments, simulated patients, and other learning tools. To implement a safe environment for faculty to learn will require a room with a whiteboard, coffee, food, and other resources for the planned learning to take place. It will be important for the dean to be present at the initial meeting. The dean can set a climate that approves and rewards new behaviors and that, according to Knowles et al. (2011), affect a climate of learning. In Winter Quarter 2015, this meeting should take place. Every quarter, the faculty and the dean can review progress on its implementation. At weekly meetings, the team can discuss the environment to learn as well.

Strategy 2: Design assessments with stated criteria that are consistent and clear. To implement designing assessments with criteria that are both consistent and clear will take what Knowles et al. (2011) called moving from “the teaching to the facilitating of learning” (p. 122). According to adult learning theory, the faculty would decide how best to work through the design processes. The dean is supportive, but he should not lead the planning. The control of the process should be in the faculty’s hands. Knowles et al. stressed that this does not mean only pretending the faculty are in control when in reality the dean is the one devising the strategy. In fact, the faculty need to be the ones planning, stating the criteria, and ensuring that the criteria are consistent and clear.

There are many assessments to be reviewed, revised, and created. The implementation of planning groups for each course should take place in Winter Quarter 2015. Planning groups should work continually until all assessments are completed and implemented into the paperless management system. If the faculty work one quarter

ahead of the courses that need new or revised assessments, the assessments should all be implemented by Fall Quarter 2015.

Strategy 3: Work toward ensuring clinical instructors are calibrated and that the assessments are reliable. The implementation of Strategy 3 is similar to the implementation of Strategy 2. The work must be planned and executed by the faculty. Again, the dean can discuss the direction but then let the faculty plan and implement.

Strategy 4: Ongoing faculty development will lead to assessments that are based on best practices. Collins, Friday-Stroud, and Ashley (2010) stated that faculty need to understand and value assessment in order to increase their influence upon the assessment processes. Furthermore, faculty must be supported in their endeavors to implement change (Herman, 2013). The faculty value time together in the form of meetings and workshops. With the dean's direction, these will begin immediately. The dean is in favor of workshops focused on best practices in assessment. His role is instigator; my role is facilitator. Together, the faculty can learn about assessments, environment for learning, calibrating, designing, and working together on assessments.

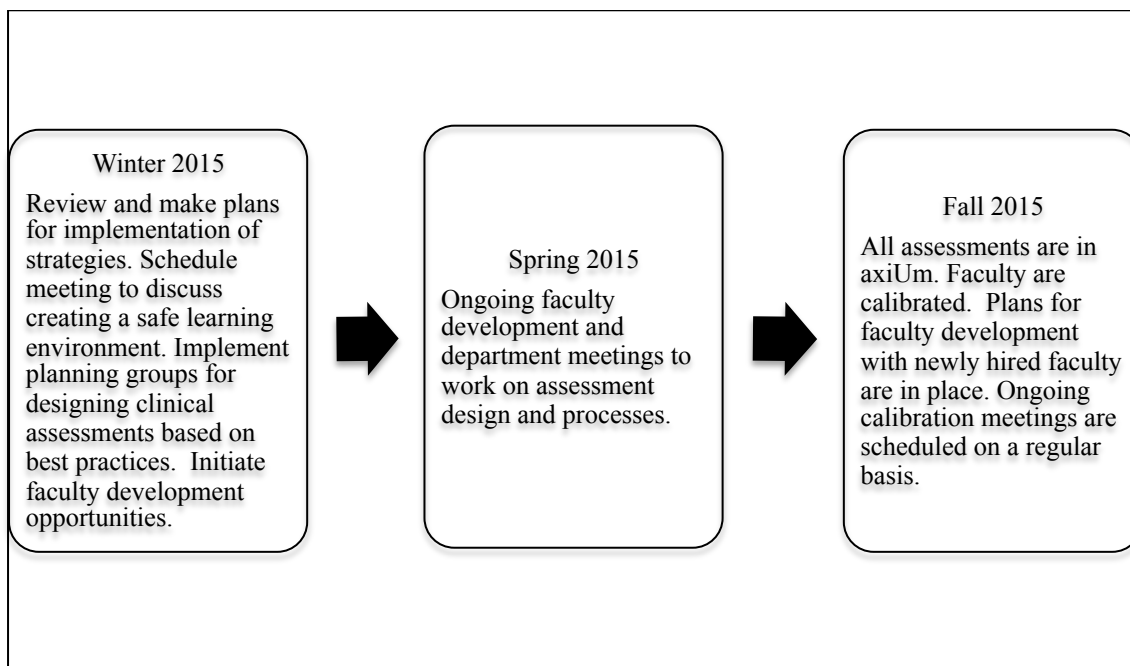


Figure 1. Timeline for strategy implementation.

Roles and Responsibilities

The project description includes identifying the roles and responsibilities of the individuals who will implement the strategies of the project. Since the strategies outlined in the position paper involve the dean of business and health sciences and the program's faculty, the same individuals will implement the roles and responsibilities for each strategy. The faculty members and students are the primary individuals who will be affected by these changes. The dean, however, is involved in all decisions regarding human and financial investments.

Strategy 1. The lead role in creating a safe learning environment is the dean of business and health sciences. He has, however, asked me to ensure that the work begins. Therefore, I am responsible to plan meeting times for the faculty to plan and discuss implementation of a safe learning environment. From there, the roles and responsibilities

for implementing the strategies for a safe learning environment will take the collaboration of all faculty members.

Strategy 2. The lead role in designing assessments with stated criteria that are clear and consistent is again, the dean of business and health sciences. He is directing the program's faculty to fix the problem with the program's clinical assessments. He has asked me to plan times for faculty to meet, create, and revise our current assessments. Because it will involve part-time faculty working on unpaid time, the dean is responsible to make the decision of paying faculty to do assessment work.

Strategy 3. The lead role for implementing this strategy is the dean of business and health sciences. The dean's role includes directing that the work be done and compensating part-time faculty for their time as faculty work toward ensuring clinical instructors are calibrated with reliable assessments. The responsibility and roles the faculty take are numerous. The lead faculty will need to provide the real-life scenarios used for calibration. This process will require patients, students, and time in the clinic. My responsibility will be to organize the time, patients, and students. I will be involved as a faculty member in the process of calibrating. The lead restorative faculty member will be responsible to see that the restorative faculty are calibrated as will the lead anesthetic, junior clinical techniques, and senior clinical techniques lead instructors. Although the dean has directed me to ensure the meetings take place and to report on the progress, the faculty will be responsible to implement the strategies.

Strategy 4: The dean will take the lead role and see that the faculty development opportunities are taking place. My role will be to facilitate faculty in planning

assessments, collaborating, and calibrating. I will also be responsible to set the times and places for the faculty development to take place. The dean will initially attend faculty development workshops and then leave it to me and the other dental hygiene faculty to facilitate the faculty development time. My role will be that of peer and facilitator. However, ultimately, the lead faculty will facilitate the work in their own courses after faculty reach consensus on a consistent design for assessments.

Project Evaluation

Type of Evaluation

I will use an outcomes-based approach to evaluate the four strategies described in this position paper. According to McNeil (2011), an outcomes-based evaluation focuses on the results of the project. This type of evaluation emphasizes what the participants learned from the program and the impact the learning had on faculty, students, administration, and other stakeholders. As McNeil demonstrated, each outcome or theme will have specific indicators that can be targeted and tracked. The outcomes-based approach also works well with the established outcomes assessment-reporting database at the college. Each outcome will be listed in the database with indicators listed to measure the outcome of each strategy. The outcomes will be reported as both course and program outcome results and used to support the college's reporting of outcomes and assessment as well as the dental hygiene program's assessment reports.

Outcome Measures of the Project

Each of the four strategies represents an outcome of the project study. A measurable outcome for Strategy 1 is the survey of student satisfaction each student

answers at the end of the program. I will work with the faculty to design specific questions as indicators for a safe environment. Faculty satisfaction surveys are also in place at the college; however, they are not program specific. The Office of Planning and Effectiveness has offered to track faculty satisfaction surveys to measure if the environment feels safe for faculty to learn, discuss, and calibrate with other faculty.

A measurable outcome for Strategy 2 will be the number of assessments implemented into axiUm with criteria that are stated and understood by students and faculty. A measurable outcome for Strategy 3 will be faculty who are calibrated. Following calibration exercises, faculty will be performing assessments with the same students and comparing results. The various assessments can be tracked without instructor names in the outcomes and assessment database. The database can display the faculty members' progress as a whole in calibration exercises. Faculty development opportunities will be tracked by number of faculty, both full-time and part-time who participate. Following each meeting or workshop, I will ask for feedback to be given anonymously to the dean of business health sciences.

Overall Evaluation Goals

The overall evaluation goal of this position paper is to present the dean of business and health sciences with a plan for how dental hygiene faculty will design clinical assessments that are based on best practices. The overall goal encompasses the three goals for the project: (a) increase knowledge about clinical assessment practices throughout the dental hygiene program's full-time and part-time faculty, (b) implement processes for faculty to calibrate and communicate clinical assessment strategies, and (c)

plan for regular meetings to support these goals. The project study problem, questions, data, and analysis with emerging themes led to the strategies stated in this position paper. The overall goal will be accomplished when all clinical assessments are consistent in design with stated criteria, levels of learning, and consistent scoring and grading methods. Additionally, faculty will continually work toward the goal of being calibrated with one another; this goal will be ongoing and addressed regularly through workshops and faculty meetings.

Key Stakeholders

The key stakeholders in the project include the dean of business and health sciences, faculty in the dental hygiene program, and students in the program. The support of the dean is imperative to implement the strategies set forth in this project. Although financial resources are minimal, there are some resources that will require the dean's approval to secure. In the larger context, key stakeholders also include the administration of the college, the patients in the dental hygiene program, and the patients who dental hygiene graduates of this college will treat in their practice settings.

Implications for Social Change

An important aspect to this study is the effect it will have towards social change. Positive social change implications will include a greater understanding in how to best assess dental hygiene clinical skills. Therefore, this project has positive social change implications as faculty in the dental hygiene program will increase their knowledge and confidence in how they assess student learning in the clinical environment. Additionally, valid and reliable assessments will be in place for the dental hygiene clinical courses,

program, and the learning institution. The local community will also experience positive social change as employers in both private practice and community health venues report more highly skilled dental hygienists. With clear and consistent assessments in place, patients and the community will be treated by dental hygienists who are educated to provide the highest in quality health care.

Far-reaching social benefits involve maintaining program and college accreditation through accountability. By implementing the strategies outlined in this paper, the dental hygiene program will have clinical assessments in place that are based on best practices. Therefore, during the program's next accreditation visit, dental hygiene faculty will be equipped to provide CODA with evidence that their students are meeting the standards set in place by the commission. Wide-range implications also include assisting other career and technical programs at the college that face third-party accreditation requirements. The strategies discussed in this position paper could help these instructors develop clear and consistent skills assessments based on best practices.

Possible implications for social change involve the local, state, and national dental hygiene societies that are looking for ways to help faculty improve teaching and learning skills. I will be prepared to share strategies for successful implementation of clinical assessments based on best practices for evaluating clinical course outcomes.

Conclusion

Section 3 included a description of the project based on the findings from the project study. Four themes emerged from the project study interviews and document analysis. The goal of the project study was a detailed position paper written to the dean

addressing the need to restructure clinical assessment practices throughout the dental hygiene program's clinical courses. Based on the themes and outcomes, I developed four strategies for addressing the problem with a timeline for their implementation. The implementation of each strategy will be based on Knowles's adult learning or andragogical learning processes. Positive social change implications will be evidenced by an increase in faculty confidence, greater institutional accountability, and qualified students who will provide the highest in quality care for their patients and communities. In the following section, I reflect on the project study's strength and limitations as well as make recommendations for further research or project studies. This final section also includes a discussion on my growth as a scholar, educator, and project developer.

Section 4: Reflections and Conclusions

Introduction

The purpose of this study was to explore perceptions of faculty regarding best practices in clinical skills assessments and their use in the clinical learning environment in order to align all clinical assessment designs and practices. After analyzing the project study's data and conducting a thorough review of the literature based on the genre for this project, I determined a position paper would be the appropriate project for this study. In this section, I discuss the strengths and limitations of this project as well as recommendations for how others might address the problem. I also reflectively analyze my personal growth as a scholar, practitioner, and project developer. Finally, I describe the potential impact for positive social change and recommendations for further research.

Project Strengths

The project was structured around the problem that faculty in the dental hygiene program being studied have been measuring student learning in clinical courses with assessments that are not based on what researchers have defined as best practices in assessment. Coplen, Klausner, and Taichman (2011) argued that educational skills, including assessing students, are among the most important qualifications needed for today's dental hygiene faculty. Hutchings et al. (2013) stated that assessments are best conducted when they include clearly stated purposes with as much attention paid to the skills and practices that link to the outcomes as the outcomes themselves. Because dental hygiene educators are hired based on clinical skills, for best practices to be adopted, strategies for faculty learning should take place. The strength of this position paper lies in

the described strategies I will present to the dean of business and health sciences with suggestions for how faculty in a dental hygiene program can accomplish clinical assessment designs and processes based on best practices. The strength of this project also lies in that I am also a faculty member in the dental hygiene program being studied. One can see from the themes that emerged from the interviews and data analysis that faculty were motivated to collaboratively improve the program's assessment designs and processes.

The approach I used to collect data involved interviews and document analysis of the phenomena being studied. This approach to my study allowed me to comprehend with a deep understanding what faculty members perceived to be best practices in dental hygiene clinical skills assessment. As Merriam (2009) suggested, the descriptive qualities of a case study provided me with a rich and thick description of the dental hygiene faculty's perceptions around clinical assessment processes and designs. Triangulation of data I collected from interviews from full-time and part-time faculty with an analysis of current assessment documents led to a robust case study based on best practices for clinical assessment processes and designs. The strength of the case-study approach enabled me to develop a strong position paper dedicated to the perspectives of the faculty.

I developed a position paper as the project to address the problem. The position paper includes four strategies to address and ameliorate the problem with the dental hygiene program's clinical assessments. The four strategies emerged from the perspectives of full-time faculty, part-time faculty, document analysis, data analysis, and

the project's literature review. As Stelzner (2010) and Powell (2012) suggested, I was able to use a position paper to strategically create and communicate a position to support, make decisions, and base actions for answering the project study questions and, hence, solve the project study problem. Therefore, the position paper worked well for the problem proposed in this study, as the dean requested information for how the dental hygiene program would amend the designs and processes with the program's clinical assessments. Faculty perceptions and document analysis are what determined the strategies that would best support the implementation of clinical assessment designs and processes based on best practices. The position paper also supported the theoretical foundation for this study, which was that adults learn when they have a need to know and are ready to learn (Knowles, et al., 2012). The implementation plan and outcome-based evaluation provide the basis for how to progress with the strategies. Furthermore, the position paper directly answered the research questions and spoke to the project study problem. Finally, the dean of business and health sciences has the information he needs with strategies on how to direct faculty to implement clinical assessments based on best practices.

Project Limitations

It is important to acknowledge any influences or conditions that were beyond my control yet could have influenced the results of the project. The limitations in this study were particular to the methodology used to conduct the study. Although Stake (1995) stated that case studies are conducted to make a specific case understandable, case study researchers are not interested in creating general theories around a topic. Therefore, a

limitation to case-study methodology and to this position paper is that it cannot be generalized to a larger population. Had I more time and additional resources, I could have conducted a larger study based on multiple dental hygiene programs in order to further allow for transfer of findings to a larger population.

Although studying many dental hygiene programs would have been useful for some aspects of this study, the focus of the project was on gaining knowledge and determining program-specific designs and processes for conducting clinical assessments based on best practices. It was beyond the scope of the project to determine what other dental hygiene programs determine for designing and conducting clinical assessments. Therefore, suggestions for other dental hygiene programs are not included in the position paper. As a result, this project is not a detailed model for how other dental hygiene programs' faculty should assess students in clinical courses. Instead, it addresses gaining internal knowledge for implementing assessment designs and processes in a specific dental hygiene program.

Recommendations for Alternative Approaches

The problem this study addressed could have been addressed differently by broadening the scope of the project to include other dental hygiene programs' faculty perceptions around assessments and processes for assessing clinical skills. By broadening the scope of the project, additional strategies may have emerged that would be useful in many dental hygiene programs. On the other hand, I could have narrowed the scope of the project to address only one strategy, for example, faculty development. Faculty development could be an alternative definition to the problem. By focusing only on

strategies for faculty development, I could have developed more in-depth ideas for faculty to communicate and calibrate with one another. I also could have narrowed the scope to only the design of the assessment form. Again, this would have provided specific focus on merely the design of clinical assessments.

Scholarship, Project Development, Leadership, and Change

As a student of research, I have learned much from the processes I used to develop this project. In the following self-analysis, I reflect on what I have learned about the processes of the project study and its development into a project. I also reflect on my personal growth as a scholar, practitioner, and project developer.

The processes of the project study included a case study designed to learn faculty perceptions around best practices in clinical assessment processes. A case study allowed me to learn and understand certain perceptions held by all faculty as well as perceptions unique to full-time and part-time faculty. A comprehensive analysis of the clinical designs allowed me to triangulate the data and create a position paper that thoroughly addresses the project study problem and questions. By conducting a case study, I have been able to capture the complexity of a particular group of faculty and its endeavors to assess students' clinical skills. As a faculty member in the program being studied, I appreciate the knowledge and experience held by the faculty in the dental hygiene program. The faculty are experienced clinicians and well respected in the college and in the community. As with most career and technical programs, the instructors are professionals trained in their field. The instructors in this program have a varied knowledge base about clinical assessments. Conducting this case study has helped me to

provide strategies to suggest a plan to the dean for how the faculty in this program can build on their experiences in order to communicate, collaborate, and calibrate around clinical assessment processes. The results will include consistently designed clinical assessment forms with processes based on best practices.

Scholar, Practitioner, Leader of Change

The scholarship of teaching and learning encompasses many aspects of my growth as a scholar and practicing educator. By conducting this study and developing a project specific to clinical assessments, their designs, and processes, I have read a multitude of journal articles and books, as well as engaged in many conversations in the teaching and learning community. These learning experiences have greatly increased my knowledge around both case studies and clinical assessments. By conducting this case study, I have been afforded the opportunity to learn and share knowledge on the multiple aspects of clinical assessment techniques. It is my desire to work with clinicians who enter academia with little or no education in how students learn or how students are assessed. I also joined the faculty as an experienced clinician, having worked over 20 years in private practice with no experience in academia until I earned a master's degree in postsecondary adult and continuing education. I feel very fortunate to have received this education and want to encourage other educators in health science fields to do the same.

I have also learned much about case study research. At the beginning of this journey, I had no idea of the depth and breadth of education I would be receiving. Because of the multitude of experiences, I have come out a better scholar, teacher, and

leader of change. I am excited to continue my research to improve the scholarship of teaching and learning in the dental community.

Project Developer

Several individuals were a part of making this project achievable. Although I do not work at a research university, I had the support of the community college research specialists to see that I conducted my project study based on ethical principles. Additionally, each participant checked his or her interview data to ensure that what I captured was valid. I also had a peer reviewer take the time to read my study, discuss the themes with me, and help the study become a project that would lead to social change.

It was not until I had the findings documented that I realized the project would be a position paper. Initially, I thought a workshop would be the deliverable project. However, as multiple themes emerged that became the outcomes for this study, I realized a position paper with strategies and processes for implementation and evaluation would be a superior project in order to answer the research problem and present a solution to the dean. By determining the implementation plan and evaluations for four strategies, I was able to encompass the complexity of the problem in this program. Rather than one strategy, I researched each strategy in order to set the stage to implement and evaluate the entire project.

Reflection on the Importance of the Work

This case study is extremely important to the viability of a dental hygiene program that has experienced many significant changes, any of which would have made an interesting case study. Last year, the program experienced a major remodel that

included all new units, chairs, equipment, digital radiography, and a new paperless management system. Additionally, the State Board of Career and Technical Colleges (SBCTC) and the college's accrediting body approved the program change from an associate to a baccalaureate program beginning in Fall Quarter 2015. Clinical faculty who teach in didactic courses are now required to earn a master's degree or be in process of earning a master's degree by Fall Quarter 2015. Amidst these changes, the dean asked for the program's clinical assessments to be ameliorated and to be based on best practices prior to the assessments being implemented in the paperless management system. In order for faculty, who are responsible to the dean and others within the academic hierarchy, to assess based on best practices, I needed to know what faculty knew, or did not know, to work collaboratively with them in their assessment efforts.

One of the most important results came from simply conducting the interviews and including faculty in the document analysis that developed into a shared awareness and ownership of the problem. I am a faculty member working with other faculty members to ensure all of these changes happen as seamlessly as possible. I now have parameters set for designing a professional development learning module or workshop. Professional development ideas for clinical assessment work will be accomplished by employing Knowles's andragogical model for adult learning (Knowles, Holton, & Swanson, 2011) as the theoretical base.

This case study is also important to the accreditation of the dental hygiene program. The CODA lists standards with competency statements describing the level of skill students must attain before they graduate. The position paper with strategies and a

timeline for completion of clinical assessments based on best practices will ensure the program's clinical assessments are in place for its next accreditation site visit in 2017.

Implications for Social Change

An important aspect to this study is the effect it will have towards social change. Positive social change will occur as faculty increase their confidence in how they assess student learning. The institution will have valid and reliable assessments in place for the dental hygiene program and will, therefore, gain a greater understanding in how to best assess clinical skills. Additionally, employers will report more highly skilled dental hygienists. With clear and consistent assessments in place, the project study will further result in positive social change as patients will be treated by dental hygienists who are educated to provide the highest in quality health care.

The outcomes of this study include the realization that there is much thoughtful work that goes into creating clinical assessments based on best practices. It is not only the design, but also the environment for learning, the knowledge level of faculty, and the calibration of instructors that enter the equation. The outcomes for this case study open doors for future research that could be valuable to other dental hygiene programs as well as programs that measure clinical skills' attainment. This project study provides implications, applications, and directions for future research.

Implications for Future Research

This project highlighted the need for additional clinical assessment studies in the dental hygiene education field. As the outcomes emerged from the study, so did the complexity of dental hygiene clinical skills' attainment and assessment. Dental hygiene

clinical skills' attainment involves dexterity, tactile sensitivity, and visual acuity. The project study opens doors for future research in development and assessment of any one of the complex skills students must acquire to be competent dental hygienists. The program moves quickly from basic-to-complex skill attainment, all in conjunction with didactic coursework. Therefore, future studies should focus on how students best learn to transfer information from the classroom to the clinic. Also, as other colleges move from paper to paperless, it will be essential to have conversations with other faculty members to learn what strategies they are using to assess clinical skills. Visits to other dental and dental hygiene programs could reveal other processes that the dental hygiene program can adopt or share with others as we continually strive to improve.

Applications for Future Research

This project can be applied to the dental hygiene program where the case study took place as well as other dental hygiene programs working with similar problems with clinical assessments. Four strategies emerged from the study; each strategy is aligned with the outcomes of the data analysis, which addressed the project study's questions. The four strategies provide opportunities for future project studies to be conducted. There are journal articles directed toward creating safe learning environments, designing assessments, calibration and reliability, and faculty development: all with need for additional research.

Directions for Future Research

If I were to conduct this study again, I might select one of the four strategies and ask more specific questions related to each specific outcome. For the purposes of

understanding faculty perceptions around best practices in assessment, directing the study toward one of the specific strategies could reveal important information and have tremendous value for programs with a clinical component.

Conclusion

Thoughtfully designed and implemented clinical assessment processes and designs are essential to student learning in a program such as dental hygiene. By conducting a study based on faculty perceptions in best practices for clinical assessment, four strategies emerged for how this program's faculty could accomplish the task of redesigning their clinical assessment forms and processes. Information derived from this project study has enabled me to provide the dean with a detailed report outlining the parameters for how faculty in this program create and redesign their assessment forms and processes. Positive social change will ensue as parameters for the position paper further serve as a guide for the college's other technical programs' faculty who are assessing students' performance skills. Positive social change will also follow as the program's courses are taught by faculty who are confident in how they assess students' clinical skills. Dental hygiene graduates from this program will be more highly qualified dental hygienists whose skills are measured using standards of best practice and who will provide an increase in the quality of patient care.

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Appendix A: Strategies for Restructuring Clinical Course Assessments in the Dental
Hygiene Program

Background

The following position paper was designed to provide information directed to the dean of business and health sciences in a community college's dental hygiene program. The focus of the paper is to outline how dental hygiene faculty could create clearly understood and consistent clinical assessments that are based on best practices. This position paper is the resulting outcome of a case study involving the dental hygiene program's full-time and part-time clinical faculty. The problem that led to the need to conduct a case study was that faculty were measuring student learning in clinical courses with assessments that were not based on the literature's definition of best practices in assessment. According to the literature, best assessments' principles derive from their consistency in design, grading scales, and clarity. The dental hygiene program's clinical assessments were shown to be inconsistent in all.

During the 2013-14 school year, the dental hygiene clinic underwent an extensive remodel that included the implementation of a paperless management system called axiUm. AxiUm will house the program's clinical assessments and requires that assessments be constructed with consistent designs. During the 2013-14 school year, faculty began examining their clinical course assessments for the purpose of the assessments' eventual implementation into the paperless management system. As assessment designs and procedures were compared and contrasted, I identified a gap between the current clinical assessment procedures and those following guidelines for

best practices as presented in current literature. Moreover, I realized that this gap could lead to inconsistent patient and community care.

The dental hygiene program is scheduled to have axiUm fully implemented, with clinical assessments in place, by the beginning of Fall Quarter 2015. Therefore, faculty members are facing a challenge in the timeliness needed to fulfill the outcomes with regard to how faculty are to conduct and assess clinical processes. The faculty and administration realize that the implementation of axiUm has made solving the gaps in practice both required and timely.

A larger situation involves maintaining program and college accreditation through accountability. Without clinical assessments in place, the dental hygiene program would be placed at risk of cessation, as the dental hygiene program would not be able to continue if the program lost its accreditation status (CODA, 2012). In addition to the dental hygiene program, there are other career and technical programs at the college that also face third-party accreditation requirements. Therefore, the strategies discussed in this position paper could help faculty in other career and technical programs to develop clear and consistent skills assessments based on best practices.

In order for dental hygiene clinical faculty to assess based on best practices, I needed to know what faculty knew, or did not know, in order to work collaboratively with them in their assessment efforts. The outcomes of this case study resulted in the development of this position paper, which includes recommendations for how to ameliorate the dental hygiene program's clinical assessment processes, designs, and methods, to align with best practices in assessment. These recommendations are based on

this dental hygiene program's current state of assessment, and faculty requirements for developing and implementing clinical assessments based on best practices.

Four Strategies for Best Practices in Clinical Assessment Processes

The dental hygiene program's learning outcomes state the knowledge and skills dental hygiene graduates should possess upon completion of their degree. Assessments based on best practices provide information about how well students are progressing towards meeting the program's outcomes (Hutchings, Ewell, & Banta, 2013; Razek & Awad, 2011). Over time, lead clinical faculty members have created assessments for their clinical courses without knowledge or application of best practices in assessment. For example, Suskie (2013) stated that assessments should be consistent and easy to understand. However, the clinical assessments in place were widely varied in design and grading scales. In fact, there was very little consistency among all of the clinical assessments. Therefore, this detailed report provides information on best practices in clinical assessment and strategies for how to implement these practices in the college's dental hygiene program.

To address the problem and questions around how to amend the assessments as appropriate for best practices, the case study I conducted explored faculty perceptions of clinical assessment practices. The project study questions explored what the program's faculty need to know, and what processes need to be in place, in order to support this change. The project study participants included the four lead clinical faculty and four adjunct clinical faculty members. The adjunct participants represented each of the clinical courses being taught in the college's dental hygiene program.

Four major themes emerged from this project study. The first theme to arise from the interview data was the need for a safe and positive learning environment that supported learning through assessment for formative purposes. An additional theme surfaced around the design of clinical assessments needing to be consistent with clearly stated and understood criteria. A third theme emerged around the need for full-time and part-time faculty to communicate with one another in order to calibrate assessment processes. The final theme to surface from the study was the importance of developing ongoing opportunities for faculty development based on best practices in clinical assessment. This final theme encompasses the ongoing need to evaluate each of the aforementioned themes.

Based on the case study findings, emerging themes, and a review of the literature, I have identified four strategies to strengthen the program's clinical course assessments. Each strategy is aligned with the project study's questions and outcomes of data analysis. The strategies are tailored to the needs of the dental hygiene program and are based on input from the project study participants. Each of the four strategies requires minimal financial resources; however, all strategies demand human resources for them to be successfully implemented into the college's dental hygiene program.

Strategy 1: Create a safe learning environment.

A fundamental theme that arose from the project study data was that clinical assessments should be performed in an environment conducive to learning. Clinical assessments are a part of the daily learning activities in the dental hygiene program. Henning, Shulruf, Hawken, and Pinnock (2011) described this concern in medical

education as a competition for resources. In other words, the clinical component in medical or dental education is often thought of as a clinical service rather than a means for student learning. According to Henning et al., this competition can lead to tension in the learning environment. There are other reasons the learning environment of clinical courses should be taken into consideration. Bishop, Caston, and King (2014) stated that the environment for learning should include an environment that supports student's self-assessment of their skills and the learning that accompanies self-assessment.

Furthermore, Bishop et al. stated that faculty must teach students these self-assessment skills for an environment of learning to ensue. Van Hell, Kuks, Borleefs, and Cohen-Schotanus (2011) stressed the importance of the faculty creating a safe learning environment by understanding how students learn, portraying this to the learners, and understanding the stress of transitioning from a preclinical learning environment to working with actual patients.

There are also different stages of learning that need to be considered when creating a safe learning environment. Van Hell et al. (2011) argued that the greatest stress on medical students is when they transition from preclinical to clinical training. Likewise, in preclinical dental hygiene courses, students practice on dentoforms (sets of teeth connected to dental chairs simulating real mouths) and on each other. Dental hygiene students, in the program being studied, transition to actual patients in their fifth week of the second quarter. Van Hell et al. stated that medical students described the transition from preclinic to clinic as a time when they felt unsure and incompetent when performing the easiest of procedures. To address this stress, Van Hell et al. suggested faculty look at

the high workload and expectations of students at this time in their learning. Dental hygiene students also carry an extremely high workload with didactic and clinical courses consuming at least 40 hours a week at the school. No matter the stage of learning, exhausted students will only add stress to an already stressful environment.

Dental hygiene students live with the fear of making mistakes whether being assessed while working on dentoforms or when treating patients. One faculty participant mentioned that the fear students often possess, even while being assessed formatively, adds to a stressful clinical environment. Bishop et al. (2014) argued that the environment should support making errors, as this is the way people learn. Bishop et al. suggested that faculty focus on the first day of class to set the stage for a safe, non-competitive learning environment. Although students compete to get accepted into the program, once they are accepted, it is important for faculty to create a collaborative, noncompetitive, learning environment.

Just as the environment is no longer competitive, the demands on students' time also changes. In order to meet clinical assessment requirements, most students need to spend just as much time practicing clinical skills as they do studying for didactic courses. For this reason, Guadagnoli, Morin, and Dubrowski (2012) added that the level of stress in the environment should change as the students gain more practice time and clinical experience. Guadagnoli et al. reported that the criteria for the environment should be summarized on the assessment form, and that the environment support learning through practice. In this way, Guadagnoli et al. argued, the environment can feel safe even as it becomes more challenging. These are concepts the faculty could take into consideration

when assessing the students in the clinical courses. Faculty could purposely create an environment with less stress during early clinical courses and then gradually increase the stress to simulate the workplace.

Although students and administration often hold faculty accountable for the learning environment, Denial (2011) placed the responsibility for the environment on the student. Denial stated that it is the student's responsibility to familiarize him or herself with the environment and the assessment criteria. Denial also argued that students should be responsible for practicing and maintaining their clinical skills in order to be in control of their own environment. As faculty focus on a safe environment, they should consider focusing on first day activities, transition points, and the criteria listed within each assessment form.

Strategy 2: Design assessments with stated criteria that are consistent and clear.

A second underlying theme was that clinical assessments should be clearly written and communicated with well-defined and consistently understood criteria. Clinical learning is often discussed in medical education literature. The concerns are similar among health care fields requiring a clinical component. Henning, Shulruf, Hawken, and Pinnock (2011) conducted a study of student perceptions around the clinical learning environment. Henning et al. stated that medical students reported a need for consistency of teaching and assessments throughout their clinical courses. Specifically, the students in the study discussed a need for more clarity in objectives and greater consistency in how assessments were conducted. Henning et al. suggested clinical assessments could be made more consistent if they were monitored in terms of content,

response process, internal consistency, and relationship to established criteria and intended outcomes. Medical students also stated a need for grading criteria that was consistent and clear (Henning et al., 2011). According to Mafa and Gudhlanga (2013), quality assessments require clarity in all aspects of design and process. Clearly stated outcomes with assessment criteria that are understood by students and faculty would support evaluations that are based on best practices.

Licari, Knight, and Guenzel (2008) stated that criteria written for clinical assessment forms be divided into three categories: (a) Validity through establishing valid criteria, (b) Reliability by establishing format, and (c) Reliability established through clarity. Likewise, Jelovsek, Kow, and Diwadkar (2013) emphasized the importance of criterion-related validity. Jelovsek et al. defined criterion-related validity as “the extent to which scores of the instrument are related to a criterion measure” (p. 655). Licari et al. and Jelovsek et al. emphasized the importance of clearly stated criteria within an established and consistent format.

Jelovsek et al. (2013) and Licari et al. (2008) emphasized the importance of the evaluation tool’s description of the process being assessed. Students find it helpful when they can use the assessment form to learn what it is they need to know, do, and be evaluated on. Licari et al. further stated that it is appropriate to change the grading scale on the form as students get more experienced but not to change the evaluation standard. In other words, by trying to be lenient when first assessing students’ clinical work, students become confused because the standard changes.

Another fundamental attribute to an assessment includes its reliability. There are

several suggestions for establishing reliability in the writing of an assessment form.

Licari et al. (2008) recommended that faculty use consistent terminology and that criteria be written horizontally with a consistent numbering system. By designing the criteria horizontally, both the educator and student can follow the criteria more easily during both the performance of the assessment and the evaluation of the product. Denial (2011) added that lack of consistency in the form's design could lead to added stress for students. The design of the form is something faculty will need to collaborate on in order to ensure reliability, consistent terminology, and consistent performance standards.

Whether faculty decide to use a 1-4 scoring method, *standard met* or *standard not met*, or other method, it should be consistent within all assessment forms. Licari et al. also suggested that students can develop problem solving skills when levels of performance, whether passing or not passing, are clearly written on the assessment form. Licari et al. argued that by establishing a consistent format, learners focus on the criteria rather than trying to figure out the format for the assessment. The faculty in the dental hygiene program need to decide together how many degrees of excellence should be reported on the assessment form.

Strategy 3: Work toward ensuring clinical instructors are calibrated and that the assessments are reliable.

A topic that arose frequently when discussing best practices with the faculty was that faculty need and want to be calibrated. Furthermore, calibrated faculty are imperative for an assessment to be reliable. Denial (2011) added that faculty who are not calibrated, and therefore lack in consistency of expectations among assessments, also add to a

student's stress and confusion. Tweed and Wilkinson (2012) compared diagnostic medical assessments with educational assessments and came to a similar conclusion. Tweed and Wilkinson argued that all types of assessment require calibration and consistency among evaluators. Tweed and Wilkinson stated that with a reliable assessment, the same test results could be reproduced when performed by different clinicians, educators, or observers. Mitchell, Anderson, Sensibaugh, Osgood, and Mitchell (2011) argued that educators would be more calibrated with reliable assessments if the assessors spent more time working together to develop adequate grading criteria within well-defined rubrics.

Although the authors mentioned above stated reasons for faculty to list specific criteria and to be calibrated regarding each assessment form, Wilkinson et al. (2011) argued that greater reliability occurs from the combination of various assessments, rather than from specifically listing detailed criteria. Wilkinson et al. stated that educators should look for a pattern in a student's performance, rather than base competence on a specific assessment. Wilkinson et al. suggested more research should be done around the assessment system rather than the assessment tool. Although Wilkinson et al. make some valid points, I would agree with Mitchell et al. and Denial, that at this time dental hygiene faculty need opportunities to work together to calibrate and create reliable assessment designs and processes. From there, the faculty can work on looking for patterns in a student's performance.

Reliability and calibration support the strategy for clarity. Licari et al. (2008) argued that reliability is enhanced when faculty and students understand the instructions

given on the assessment form. For example, faculty should agree on what instrument the student should use to perform a specific skill. Faculty should also reach a consensus on what observation method to use. Participants mentioned that during clinical assessments, some faculty watch students perform a skill on the entire mouth as listed on the assessment form, while other faculty might observe one or two teeth in a quadrant and consider that sufficient to either pass or not pass a student on a particular skill. Participants also mentioned that there are so many assessment forms with different designs, criteria, and scoring methods that it is easy to get confused and thus be inconsistent with how other instructors are assessing. Licari et al. said that reliability is increased when fewer designs are employed for assessments. Reliability is important to the faculty, and by working to create consistency among the assessment designs and methods, assessments will be in line with best practices.

Participants stated that they would like more criteria listed on the assessment forms, which aligns with best practices in clinical assessments. Moreover, Jelovsek et al. (2013) stated that the criteria should encompass the knowledge needed to perform the skill as well as the actual performance of the entire clinical task. With the variations present within a multitude of clinical assessment forms, the dental hygiene program's faculty will need to agree on how each assessment form is designed. As faculty discuss the reliability of the clinical assessments they use, perhaps each assessment should be designed similarly with specific criteria listed to assess each skill.

The roles of the faculty members and students are crucial for a reliable evaluation to take place. Denial (2011) argued that faculty should be aware of their roles in

providing clear expectations to students in every clinical situation. Equally, students should be conscious of their roles in the clinical evaluation process. Students are responsible for maintaining their clinical skills and being familiar with the learning environment (Denial, 2011). Moreover, engagement of faculty and students is important to successfully implement reliable assessments.

Strategy 4: Ongoing faculty development will lead to assessments that are based on best practices.

The fourth overarching theme was that full-time and part-time faculty would value learning collaboratively about clinical assessments in a variety of modalities. Dental hygiene education requires that students be assessed against standards determined by the CODA (Wood, Mitchell, Holt, and Branson (2014). Dental hygiene assessment measures a student's ability to perform specialized tasks similar to real-life work situations. The accreditation standards contain written competencies detailing the performance standards each student must meet prior to receiving a license. In order to prove the students are competent to practice dental hygiene, students are assessed on clinical skill acquisition. In dental hygiene this involves dexterity, tactile sensitivity, and visual factors. Clinical skill acquisition is one of the most complex aspects of dental hygiene education and is therefore, the most difficult to assess (Wood et al., 2014). Dental hygiene clinical educators must consistently be aware of the standards for practice and care. In order to become more skilled and confident in assessing clinical skill acquisition, faculty need opportunity to work together, share knowledge, calibrate, collaborate, and learn.

Faculty development was one of the one of the significant areas for further study stated in the American Dental Hygiene Association's National Dental Hygiene Research Agenda (Johnstone-Dodge, Bowen, Calley, & Peterson, 2014). The American Dental Education Association's Strategic Directions also names as one of its key priorities the need to "Provide professional development programming and resources targeted to the needs of new dental educators to enhance the pedagogical skills and competencies of these new members of the faculty" (Johnstone-Dodge et al., 2014, pp. 1319-1320). Faculty development, although frequently discussed in the literature as *needed*, should be strategically *implemented* to help the dental hygiene faculty gain the knowledge and skills needed to conduct clinical assessments based on best practices.

Conclusion

Assessment of clinical skills in the dental hygiene program is essential to developing competent dental hygiene clinicians. Evaluation processes in the dental hygiene program need to be designed for consistency, clarity, and reliability. In addition, formative assessment processes should take place in an environment conducive to learning, an environment where students and faculty feel safe to learn. The strategies set forth in this position paper outline how faculty can address the problems evident in the dental hygiene program's clinical assessment processes. By ensuring each of these strategies are executed and consistently updated, faculty will have occasion through ongoing meetings and faculty development opportunities, to gain knowledge and skills to apply best practices to the program's clinical assessment processes.

There is a timeline in place that supports the need to fully implement axiUm by Fall Quarter 2015. In order to apply all that this significant change entails, faculty will collaborate to fulfill the strategies outlined in this position paper. The case study I conducted in the college's dental hygiene program will effect positive social change as faculty increase their confidence in how they assess student learning. The institution will have valid and reliable assessments in place for the dental hygiene program and will, therefore, gain a greater understanding in how to best assess clinical skills. Additionally, employers will report more highly skilled dental hygienists. With clear and consistent assessments in place, the project study will further result in positive social change as patients will be treated by dental hygienists who are educated to provide the highest in quality health care.

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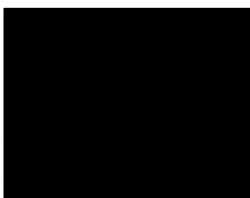
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training and clerkships to ease the transition from preclinical to clinical training.

Medical Teacher, 33, 689-696. doi:10.3109/0142159X.2011.611837

Appendix B: Letter From Dean of Business and Health Sciences



April 7, 2014

Walden University URR
100 Washington Avenue South, Suite 900
Minneapolis, MN 55401

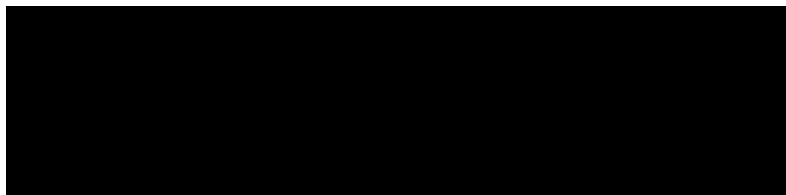
Dear IRB Committee,

My name is xxxxx I am the Dean of Business and Health Sciences (BHS) at xxxxx in xxxxx. I am aware that our Director of Dental Hygiene at x Brenda Walstead, EdD student in your program, is proposing a study of faculty perceptions regarding best practices in clinical assessment. Although Brenda has a Director title that is only for Commission on Dental Accreditation (CODA) requirements. Director Walstead is a full-time faculty member at x According to our Association for Higher Education (AHE) Contract, faculty cannot supervise other faculty. Professor Walstead is given release time to fulfill the duties involved with managing the Dental Hygiene program. As Director, Brenda Walstead does not conduct faculty evaluations and has no authority over other faculty members.

Every seven years the accreditors from CODA thoroughly examine all aspects of the Dental Hygiene program. It is the Director's responsibility, currently Brenda Walstead, to ensure the accreditation report that is sent to CODA prior to their visitation is completed and correct. Although Brenda has the responsibility to see that the Dental Hygiene program follows recommendations made by CODA, there is no conflict of interest either directly or indirectly regarding Professor Walstead's evaluation of faculty who do not comply with accreditation standards. That is not in the scope of Brenda's position at xxx and is totally my responsibility as the Dean of Business and Health Sciences. Please let me know if you have any additional questions or need additional information. I can be contacted at xxxxx
xxxxx

Respectfully,
xxxxx

Dean of Business and Health Sciences



Appendix C: Letter from XXXXX IRB



June 24, 2014

Walden University URR
100 Washington Avenue South, Suite 900
Minneapolis, MN 55401

To Whom This May Concern:

XXXXX is not a higher education *research* institution; therefore the college's research protocol requires the primary institution – the institution awarding the advanced degree – to initially review and determine approval prior to the research review at XXXXX. Once approved by the primary institution, the XXXXX IRB process will begin. The primary purpose of the XXXXX IRB process is to ensure that all participants in a study provide informed consent and the consent is not an outcome of coercion or undue influence by the participant's relationship to those participating.

Although XXXXX policies do not preclude employees who supervise others from conducting research involving those whom they supervise, Professor Walstead has no supervisory responsibilities for those to whom she intends to involve in her research project (please see the attached letter from the dean). Once Professor Walstead's research is approved by the Walden University review board, the XXXXX IRB will review the informed consent procedures to ensure faculty are participating of their own free will.

In order for Professor Walstead to submit her Research Protocol with XXXXX, she will need documentation from Walden University that her proposal has been approved by the university, or approved pending XXXXX approval. Once she has that documentation, she can submit her information to XXXXX for review. If there are any issues, I will work with her on ways to minimize risk to those involved.

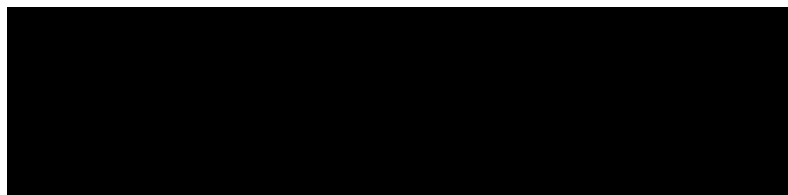
Attached please find XXXXX *Guide to Researchers on the Use of Human Subjects* along with a letter from XXXXX Dean of Business and Health Services.

Please feel free to contact me if you have any additional questions at XXX or XXXXX.

Sincerely,

XXXXX

IRB Chair



Appendix D: Consent and Confidentiality Form

You are invited to take part in a research study of faculty perceptions regarding best practices in assessment focusing on clinical assessment in the dental hygiene department. The researcher is inviting full-time faculty leads in clinical courses and adjunct instructors representing each of the four clinical courses: first-year clinic, second-year clinic, restorative clinic, and anesthesia clinic to be in the study. This form is part of a process called “informed consent” to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Brenda Walstead, who is a doctoral student at Walden University. You may already know the researcher as a faculty member in the dental hygiene program; however, her role as researcher in this study is not related to her employment role.

Background Information:

The purpose of this study is to explore perceptions of faculty regarding best practices in clinical skills assessments and their use in the clinical learning environment in order to align all clinical assessment designs and practices.

Procedures:

If you agree to be in this study, you will be asked to:

- participate in an individual interview which will take approximately 60 minutes..
- consent to having the interview tape recorded
- participate in member checking of the researcher’s findings for their own data and discussion with the researcher , which will take approximately 30 minutes

Below are some sample interview questions:

1. Discuss the importance of performing a competency skill at each stage of a student’s learning. What stages should be included?
2. How might you design a complex clinical skills assessment to capture each stage of a student’s learning?
3. In your experience as a clinical instructor, have you interacted with any assessment processes, forms, designs, and/or methods of scoring that were confusing to you? If so, how could they be made less confusing?
4. In your experience as a clinical instructor, have you noticed any assessment processes, forms, designs, and/or methods of scoring, that were confusing to students? If so, how could they be made less confusing?

Voluntary Nature of the Study:

This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at XXXXX College will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during or after the study. You may stop at any time.

Risks and Benefits of Being in the Study:

Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as time taken out of an already busy day, which could make you feel upset. Being in this study would not pose risk to your safety or wellbeing.

The study's potential is to have the dental hygiene program's clinical assessments aligned and consistent with best practices in assessment.

Payment:

Participants will not be paid.

Privacy:

Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by locking all information in a file cabinet in which only the research has a key. Data will be kept for a period of at least 5 years, as required by the college.

Contacts and Questions:

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via XXXXX. If you want to talk privately about your rights as a participant, you can call XXXXX. She is the Walden University representative who can discuss this with you. Her phone number is XXXXXXXX. Walden University's approval number for this study is 08-20-14-0272572 and it expires on **08-20-2015**.

The researcher will give you a copy of this form to keep.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By replying to this email with the words, "I consent; I understand that I am agreeing to the terms described above.

Name of participant _____

Date of consent _____

Appendix E: Confidentiality Agreement

To: _____

During the course of my activity in collecting data for this research: “Faculty Perceptions Regarding Best Practices in Assessment” I will have access to information that is confidential and should not be disclosed. I acknowledge that the information must remain confidential, and that improper disclosure of confidential information can be damaging to the participant.

By signing this Confidentiality Agreement, I acknowledge and agree that:

1. I will not disclose or discuss any confidential information with others, including friends or family.
2. I will not in any way divulge, copy, release, sell, loan, alter or destroy any confidential information except as properly authorized.
3. I will not discuss confidential information where others can overhear the conversation. I understand that it is not acceptable to discuss confidential information even if the participant’s name is not used.
4. I will not make any unauthorized transmissions, inquiries, modification or purging of confidential information.
5. I agree that my obligations under this agreement will continue after termination of the job that I will perform.
6. I understand that violation of this agreement will have legal implications.
7. I will only access or use systems or devices I’m officially authorized to access and I will not demonstrate the operation or function of systems or devices to unauthorized individuals.
8. I will have permission from the IRB of XXXXX to conduct my study.

Signing this document, I acknowledge that I have read the agreement and I agree to comply with all the terms and conditions stated above.

Signature: _____ **Date:** _____

Appendix F: Examples of Document Analysis

Student Name _____

Patient Name _____

Daily Clinical Assessment

Calculus Class _____ Perio Case Type _____
 Appointment Date(s) _____
 Session (AM/PM) _____
 Instructor Initials _____

PSA	
MSA	
ASA	
IO	
NP	
GP	
IA	
BUC	
MEN	
LIN II	
INF	
GG	
AK	
N ₂ O	
INTRA	
Other	

Assessment and Treatment Planning Skills

Medical Review..... 1-2-3-4 I-D-C-M
 Intra and Extra Oral Exams 1-2-3-4 I-D-C-M
 Individual and Comprehensive Care Plans..... 1-2-3-4 I-D-C-M
 Comprehensive Perio Chart Documentation..... 1-2-3-4 I-D-C-M

Dental Exam

Clinical Treatment and Services

Debridement Accuracy 1-2-3-4 I-D-C-M

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Problem Solving..... 1-2-3-4 I-D-C-M
 Evaluation and Self-Assessment 1-2-3-4 I-D-C-M
 Time Management/Organization 1-2-3-4 I-D-C-M
 Patient Education 1-2-3-4 I-D-C-M
 Operatory Readiness, Maintenance, 1-2-3-4 I-D-C-M
 Safety and Aseptic Technique

Age Group

Child	3-12	_____
Adolescent	13-17	_____
Adult	18-64	_____
Geriatric	65+	_____

Communication

Effective Team Person..... 1-2-3-4 I-D-C-M
 Written Skills/Chart Write-up..... 1-2-3-4 I-D-C-M
 Verbal, Body Language 1-2-3-4 I-D-C-M
 Behavior..... 1-2-3-4 I-D-C-M

Special Needs

Physical	_____
Medical	_____
Developmental	_____
Cognitive	_____
Social	_____
Other	_____

Professionalism

Appearance/Attitude..... 1-2-3-4 I-D-C-M
 Attendance 1-2-3-4 I-D-C-M
 Ethical Behavior..... 1-2-3-4 I-D-C-M

Radiographs

BWx		FMX		PANO		Other		No Rads
Retakes	Comp	Retakes	Comp	Retakes	Comp	Retakes	Comp	

_____ Date Completed

DAILY CLINICAL ASSESSMENT

Calculus Class _____ Perio Case Type _____
 Appointment Date(s) _____
 Session (AM/PM) _____
 Instructor Initials _____

(We may not need all of the above in axiUm)

<p>¹Assessment Scoring Criteria 1-2, 1-2-3, or 1-2-3-4???</p> <p>1: Standard(s) Not Met 2: Clinically Acceptable 3: Standard Met 4. Exceeds Expectations???</p>	<p>²Add levels or stage of learning</p> <p>I: Introductory D: Developmental Competent and Mastery? OR DISK: Demonstrates Integration of Skills and Knowledge</p>
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Assessment and Treatment Planning Skills

Medical Review..... 1 – 2 – 3 – 4

³Add criteria

In axiUm: Comments LONG TEXT

Intra and Extra Oral Exams 1 – 2 – 3 – 4

³Add criteria

In axiUm: Comments LONG TEXT

Individual and Comprehensive Care Plans.... 1 – 2 – 3 – 4

³Add criteria

In axiUm: Comments LONG TEXT

Comprehensive Perio Chart Documentation 1 – 2 – 3 – 4

³Add criteria

In axiUm: Comments LONG TEXT

Clinical Treatment and Services

Debridement Accuracy 1 – 2 – 3 – 4

(This needs more defining.....)

In axiUm: Comments LONG TEXT

In axiUm: Short Text Box to enter tooth #s

1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16
32	31	30	29	28	27	26	25		24	23	22	21	20	19	18	17

Problem Solving..... 1 – 2 – 3 – 4

Evaluation and Self-Assessment 1 – 2 – 3 – 4

Time Management/Organization 1 – 2 – 3 – 4

Patient Education 1 – 2 – 3 – 4

Operatory Readiness, Maintenance, 1 – 2 – 3 – 4

Safety and Aseptic Technique

³Add criteria

In axiUm: Comments LONG TEXT

²We need to add levels or stage of learning here.

Age Group

Child	3-12	_____
Adolescent	13-17	_____
Adult	18-64	_____
Geriatric	65+	_____

Special Needs

Physical	_____
Medical	_____
Developmental	_____
Cognitive	_____
Social	_____
Other	_____

Communication

- Effective Team Person 1 – 2 – 3
- Written Skills/Chart Write-up 1 – 2 – 3
- Verbal, Body Language 1 – 2 – 3
- Behavior 1 – 2 – 3

³**Add criteria**

In axiUm: Comments LONG TEXT

Professionalism

- Appearance/Attitude 1 – 2 – 3
- Attendance 1 – 2 – 3
- Ethical Behavior 1 – 2 – 3

³**Add criteria**

In axiUm: Comments LONG TEXT

Radiographs

In axiUm: Patient Needs RADS (YES OR NO?) Then Select BWX, FMX, etc.

BWX		FMX		PANO		Other		No Rads
Retakes	Comp	Retakes	Comp	Retakes	Comp	Retakes	Comp	

Take off “Radiographs” as it is in axiUm already?

_____ Date Completed

Interview Document Analysis Notes

¹Assessment Scoring Criteria Discussions:

- Define Scoring 1-4
- Most participants prefer 1-3 or 1-2
- Be consistent no matter what

Use three scales for scoring or two: Participants preferred *Standard Not Met, Clinically Acceptable, Standard Met*. For those skills that do not include a middle category, just cross out or state on form that *Clinically Acceptable* does not apply, i.e. that standard is either met or it is not for that level of learner.

²Levels or Stage of Learning Discussions:

I, D, DISK: Participants prefer to state Demonstrates Integration of Skills and Knowledge (DISK) instead of Competent and Mastery.

- Define Learning Levels on the form instead of just I, D, C, M or I, D, DISK
 I = Introductory,
 D = Developmental,
 C = Competent,
 M = Mastery

³Need criteria under each skill.

Example

Medical Review:

1. Asked all questions when patient circled a “yes” on the med hx.
 2. Medical Alerts added in red...
 3. All medications listed with oral side effects, dose, reason for taking
- We shouldn't need the appointment date, session, or instructor initials on axiUm.
 - Review all areas of grading in class so students understand what it is faculty are looking for.

**Footnotes 1 – 3 correspond with
analysis notes on pp. 163-164.**

Appendix G: Interview Guide

1. What other education or training, such as professional development opportunities, have you completed relevant to dental hygiene assessment?
2. What skills/knowledge have you acquired in your experience as a clinical instructor that lend toward assessing clinical students using what you think are best practices in assessment?
3. What are your major responsibilities for assessing students in the clinical environment?
4. Discuss the importance of performing a competency skill at each stage of a student's learning. What stages should be included?
5. How might you design a complex clinical skills assessment to capture each stage of a student's learning? (note to self, have assessments on hand so instructors can see how different instructors design assessments).
6. In your experience as a clinical instructor, have you interacted with any assessment processes, forms, designs, and/or methods of scoring that were confusing to you? If so, how could they be made less confusing?
7. In your experience as a clinical instructor, have you noticed any assessment processes, forms, designs, and/or methods of scoring, that were confusing to students? If so, how could they be made less confusing?
8. Give me some examples of how one could measure students' clinical learning that would be clear to both students and faculty.
9. Describe a typical clinical assessment in the course you teach (note to self, listen for planning)
10. How do you differentiate formative skill assessments (during their learning) from summative clinical assessments (such as a final assessment for grade)?
11. Describe how the process of conducting a clinical skills assessment can best be performed. What is your role and what is your student's role? Have you discovered any best practices in your course? How do they work?
12. How do you go about discussing the assessment data of your students' clinical skills with your students you have assessed?

13. How do you ensure calibration with other clinical instructors in the clinical courses for which you teach?
14. What education (such as a workshop, ongoing training, learning module, etc.) would be helpful to assess students' clinical skills with more consistency among raters?
15. How do you follow the assessment grading scale and descriptions when performing a clinical skills assessment? (Note to self – show instructor assessments they use in the clinical setting for which they instruct).
16. Tell me about a time when you were not very pleased with your assessment of a student's clinical skills. Why were you upset with the assessment? What did you do to address the reasons for not being pleased?
17. Tell me about a time when you were not very pleased with the assessment of a student's clinical skills by another instructor. Why were you upset with the assessment? What did you do to address the reasons for not being pleased?
18. For the leads: What methods do you use to keep other clinical instructors informed with what is going on in your course regarding assessment?

Appendix H: Sample of Interview

1. *What other education or training, such as professional development opportunities, have you completed relevant to dental hygiene assessment?*

At the American Dental Educators' Association (ADEA) meeting I went to some assessment workshops that talked about how to assess students. NW Educators we always get together in small groups and talk about the ways different schools assess and compare. We are hired on our abilities as clinicians and not on our teaching skills.

[**Code/Comment**]: Teaching and learning are not the focus when hired. No formal education on assessment – instructors are usually good clinicians, not formally taught about assessment. [**Code**: Faculty Development].

2. *What skills/knowledge have you acquired in your experience as a clinical instructor that lend toward assessing clinical students using what you think are best practices in assessment?*

Trying to figure out how they learn and adapt to that learning style. [**Code**: Learning Styles]. Some are reflective and some are hands-on. Demo or use knowledge, diagrams to get them to understand. Whatever it takes to get them to understand it, and then have them demo back to me, takes time, repetition. Give feedback. Have them apply in different situation to make sure they understand the skill or concept on a different patient.

Before I assess students, I make sure to watch them. I look at the criteria on the assessment form, some forms don't have criteria [**Code**: Criteria] (picked up an assessment form) and it's important for us to calibrate on expectations which is usually what we've agreed on and it's on the assessment form. Some forms had criteria [**Code**: Criteria] for summer, some didn't, what about newcomers? How do they know what to do? I've worked with other faculty, calibrating [**Code**: Calibrate], watch them grade, discuss why did you grade it this way, how do you know what to put there. I see other faculty as mentors [**Code**: Mentors] until I'm comfortable. Shadowing people who have been there longer and then going in and reading what each means and calibrating [**Code**: Calibrate] again to make sure you understand what each criteria [**Code**: Criteria] means and doing it consistently [**Code**: Consistency] and all are evaluating the same. It takes a long time. We aren't the same after XX years. It's experience over years of working with the same people and hashing out criteria and be on the same page to be fair. We've had some calibration [**Code**: Calibrate] meetings, or when we're working with 5 students, I would make time and go over and watch an instructor with someone else. A lot of times we work through lunch by discussing different things in clinic. We need to be responsible as instructors for learning ourselves. It's important that you're comfortable with whomever you're shadowing to learn. Just like a student. If we're tense and scared, we don't learn. Instructors need to be comfortable enough to ask questions. Everything is taking more time with the new computer system [**Code**: axiUm], there's not much time

for mentoring [**Codes**: Mentoring/Time]. That's a problem right now. Will take a year or year and a half to get comfortable with the computer system. You've got 5 students all asking for help and to be assessed, and we have new faculty. We should have simulation sessions on a day different than clinic. Have a patient come in and have us all feel calculus [**Code**: Calibrate]. This is how we check probing, anesthesia like the IA. Even though new instructors may be coming from private practice, they might not have same technique [**Code**: Calibrate] so we have to get back to basics. (I asked her what about the time it takes to calibrate with part-time faculty). Teaching isn't about the money [**Code**: Teaching and Learning/Time]. If you're not willing to come in on own time, that's just part of the job. You have to make time. We don't have to be here 40 hours but maybe half of us could meet at the same time. You need human people. You can't just do it on dentoforms [**Codes**: Communicate/Calibrate/Environment]. It's not the same. With the computer system [**Code**: axiUm], we all need to go in there and do it over and over again but not when you're inundated with students.

(Looking at the assessments): Assessments are not consistent [**Code**: Consistency]. No wonder students are confused. 1, 2, 3 then 2, 3, 4 and then when we do final assessments, we're back to 1, 2, 3. Should all be the same in 1st year going into 2nd year.

3. *What are your major responsibilities for assessing students in the clinical environment?*

I have to perform a log of formative assessments. These could be proficiencies that aren't even written out. Could be day to day activities such as filling out medical history, paperwork, HIPAA, things that they're just ethically responsible for. At the stage students are at in summer, they need to do things correctly or they get a Professional Attributes and Judgment (PAJ) Form. They get a PAJ if they're not doing it correctly.

(Pointing to an assessment form) There are proficiencies listed on this sheet that we check. I felt badly this summer, because I had 5 students, some faculty had 3, some had 4. Difference between 3, 4, 5 is huge in summer. One of my students went incomplete because I didn't have time to get to everyone and pass everyone's proficiencies. For example, Lucy. It wasn't fair [**Codes**: Environment/Fair/Clarity, Consistency] to make her go incomplete. There were some things she chose to do, but at same time maybe I could come in and watch her and get it done. But it was decided that the student was not done and going incomplete. It didn't feel fair. This wasn't communicated [**Codes**: Consistency/Communication/Fair] to all of the faculty.

Sometimes I feel inadequate to get everything done. I need to do formative and summative assessments, but because of the situation [**Codes**: Change/Environment] in clinic right now we are learning a new computer system and at the same time trying to watch students' skills. It probably still would have been too much even without computer. There were some good ideas but expectations of what had to be done in a good [**Codes**: Stress/Environment] atmosphere was too much. (I asked her to explain a good

atmosphere) We had 10 days in summer clinic, and some of those days weren't even in clinic with patients. There were clinic rotations and other things going on. There were sudden changes to assessments. It was insane [Codes: Stress/Atmosphere/Environment]. We have to cut back, [Code: Expectations?] having to do each sextant was too much. Each sextant is important but there was not enough time. Some students need more help than others. I wanted to come back another day to pass them off. There are problems finding students who are struggling and wondering if they're going to make it. Some are very reflective so it takes a long time to get it. Sometimes you come back the next day, and they're back to square one and they don't get it. They're doing it wrong. Some students it wasn't the assessment, it's more of a processing problem [Code: Problem Solving] and being able to put everything together, and being able to make a decision on your own and function and be a safe clinician. Where do you draw the line there too? How do you assess that? When they're not putting all the bits and pieces together but it's not something specific you can pinpoint. [Code: Calibrate]. But they just don't quite have it. They're just sitting there and doing nothing and you're trying to guide them and nothing gets done and they're incomplete, not because they tried to do it but they never got to it. They didn't get to the proficiency because they were trying to get through all the other things. Summer was ridiculous. Too much to do in too little time [Code: Time]. No way was it relaxing for the students or for me. It was insane. Put computer stuff to let me get through the assessment part and I couldn't even do that. When I was able to work with a student and get all six sextants done, I had a really good feeling of where they were, who picked up on things quickly and who didn't. 6-7 assessments and watch in all quadrants. We don't need to watch all six for probing. Hard doing these assessments. I find I can assess with just sitting down and watching one on one. Assessments help remind me as a checklist of what they need to be doing. They have a purpose but being inundated with all this distracts from learning. I was willing to come in for incompletes. Hate having students come into fall being incomplete and behind. May have been a language barrier and misunderstanding with my group.

4. *Discuss the importance of performing a competency skill at each stage of a student's learning. What stages should be included?*

I don't like saying the standard is never met until the final standard is met. It feels like failure, failure, failure. Too much negativity. It's important to build student's confidence and make them feel like their progressing. I like introductory and developmental and maybe a safe beginner competent [Codes: Learning Levels/Stages]. Still a lot of growing to do but safe to work on patients. Students can meet the standard for the level they are at in their learning. They need praise and acknowledgement of success when they are growing [Codes: Communication/Feedback/Positive Environment]. A lot of students feed on that and that's what motivates them, positive reinforcement. Having just met, not met is too broad. If we say standard is met for where you should be, we're not clear [Codes: Clarity/Consistency] on where we should be (definition) and it would be confusing. We need definitions of the stages and criteria listed. Gradual stages [Codes: Learning Levels/Stages/Clarity] with definitions would be clearer. Being a hygienist, type

A, having definitions (like restorative) are good, okay I did that right, I need to work on that. Someone as a new instructor can say this is where they are so I circle here (pointing to assessment form). This way is more objective than subjective. Met, not met is subjective. We need definitions and criteria. Making clear to the student that just because you're here or here (pointing to assessment form) is not a bad thing. You just need to work more to get there. I don't like superior [**Codes:** Grading Scales/Learning Stages]. Being able to define where you are helps instructor and student.

5. *How might you design a complex clinical skills assessment to capture each stage of a student's learning?*

We discussed above.

6. *In your experience as a clinical instructor, have you interacted with any assessment processes, forms, designs, and/or methods of scoring that were confusing to you? If so, how could they be made less confusing?*

It becomes confusing when the proficiency or competency or learning experience doesn't have criteria on it [**Code:** Criteria], that's where it becomes subjective. Where you're relying on your own experience [**Codes:** Inconsistent/Clarity] of what to put down. We need definitions and criteria [**Codes:** Criteria/Definitions]. If you don't have them, it's hard to be calibrated [**Code:** Calibrate] with everyone. Daily Clinical Assessment: To me this is subjective. One instructor could say missing 4 pieces is a 2 and another might say missing 4 pieces is a 3 today [**Code:** Consistency]. Scaling is hard, patients are different, calculus types are different, medical conditions, special needs thrown in, that the student has to deal with. When working on a person, there are so many factors. (Looking at restorative QA and CT): There's no guidelines for 1, 2, 3, 4. Someone who's been a teacher for years knows what to look for. It becomes subjective [**Codes:** Subjectivity/Clarity/Consistency]. (I asked her what she thinks it should look like in the computer) In the computer we should be able to click on the skill and see what the criteria is for each item. One instructor might look at each item differently than another without specific criteria. I would probably make a notation on the form and in the notebook for following up for subsequent patients. I'm setting up a summative assessment. Setting up all criteria for my summative at the end of the quarter. Don't like 1, 2, 3. 3 means you're there. If we go 1, 2, 3, we all have to use the 2 when it's necessary. We don't like to give a 2 because it seems like you're not where you should be. In the past it's meant not performed really well, you're struggling. Now it means you've got some work to do, you've got some things but you're doing okay. If you have all 2's would you pass? You wouldn't pass. We have to decide what constitutes a 2? [**Codes:** Calibrate/Criteria]. How many times do they have to do something incorrectly or not where they should be before we call it a 2? That's subjective right now. I'm not used to doing 1, 2, 3, maybe that's it. We need more definitions for what criteria [**Codes:** Criteria/Definitions] are we using to say it's a 2. Some people average the numbers. If the student is doing really well and then wants to take a vacation from performing at the level

they should be for the last two weeks, I'm not going to keep them at the grade I gave them in the beginning. If students aren't sharpening their instruments, that's not satisfactory???. It has to be in the criteria. [**Codes:** Criteria/Definitions]. Specify. Self-assessment has a lot of things in it. The final conference form and the daily form have specific criteria we want for what we are looking at. The care plan is so subjective [**Codes:** Consistency/Subjectivity]. It's ridiculous. We keep trying, and it's not working. We all need to be doing the same thing. What we have now works, but depending on the instructor one might give a 100% and another might give them less for the same thing. Are we being consistent and all looking at the same criteria, and more importantly are they learning? Should we be hung up on the grade or learning? It should be learning, not a number at the end. Students ask how come I didn't get 100%? It's not about the 100%. Feedback is okay. You don't want to make them feel like they're being punished for not doing it correctly. It should be an opportunity to correct whatever they're doing to make it right. Not just here's your grade, the end. This leaves students confused [**Codes:** Clarity/Confusion]. Assessments were supposed to be formative. In summer, the formative assessments got connected to the summative. It became a tool to decide if you moved on. Because summer is so short, we're really not assessing them throughout all summer because there's no time. We're really assessing where they were at the end of spring because we don't see them that much during summer. (Pointing to assessment form, **interesting quote**) We could have done these but not all six boxes needed to be filled out as long as we got feedback and an attempt to complete it all, watching them and make sure they were progressing at a developmental level. They were told not to worry about the pink sheets, if you don't get it all done, we'll make it work. It didn't work. Students [**Codes:** Stress/Environment] were stressed out of their minds in summer so that proves it didn't accomplish what we wanted it to. And then they did go incomplete.

7. *In your experience as a clinical instructor, have you noticed any assessment processes, forms, designs, and/or methods of scoring that were confusing to students? If so, how could they be made less confusing?*

Talked about it already.

8. *Give me some examples of how one could measure students' clinical learning that would be clear to both students and faculty.*

Definitions and criteria actually written out. Not a verbal. Grading rubrics that spell out what you need to get a certain score.

9. *Describe a typical clinical assessment in the course you teach.*

Debridement Assessment (12-piece). So many assigned surfaces on debridement, subjective on whether it's removed or not. Two instructors will check it. We never expect glass smooth surface [**Codes:** Calibration/Learning Levels]. They have to agree but there's a lot of disagreement. We need calibration exercises where we are feeling and

deciding together this is what it feels like if it's removed. In fall it should feel this way, spring quarter it feels this way. One instructor might have a different standard for what a smooth surface is. Calibration exercises [Code: Calibration]. Feeling and agreeing. Students will pick instructors who they think are more lenient. We have to be checking in the same manner. We can't some pack gauze, some of us not.

10. How do you differentiate formative skill assessments (during their learning) from summative clinical assessments (such as a final assessment for grade)?

Formative is giving them more feedback and summative is a final product. Summative would be at the end. This is where you are. We've come to a point at the end of a rotation and I've decided this is where you're at and formative is more casual feedback as they're working through skills.

11. Describe how the process of conducting a clinical skills assessment can best be performed. What is your role and what is your student's role? Have you discovered any best practices in your course? How do they work?

Depending on what we're doing. Some we walk away and they do it independently; I'm not really there other than checking final product. When it's more hands-on and I'm watching I will stress at the beginning to be relaxed, I'm just here to give you feedback. Sometimes I will watch them a little bit, walk away and come back again. A lot of students have anxiety. When they get nervous [Codes: Stress/Anxiety/Environment] they start doing things they don't normally do. Depends on student and the learning style [Code: Learning Style]. Sometimes works best when I'm not breathing down their neck. Others want you there every second of every moment.

12. How do you go about discussing the assessment data of your students' clinical skills with your students you have assessed?

It depends on the situation but if I feel it needs to be done at that moment before patient leaves, I'll come over and make sure it's positive. Let them know what things went well and then give feedback as positive again [Codes: Communication/Environment – positive]. Instead of negative feedback. If it's something that can wait until patient leaves, I prefer to wait so they don't feel on the spot. Serious but casual and as friendly as I can. Never come across threatening or degrading [Code: Communication]. Approaching the student saying these are things you can do to improve. What they did well, what you can improve on. Stress that we're life-long learners so they don't think feedback is a bad thing [Code: Communication]. Some think if they get feedback they feel like they're failing so you always have to stress if you're not making mistakes, you're not learning and growing.

13. How do you ensure calibration with other clinical instructors in the clinical courses for which you teach?

Been lucky in a way. We've had the same group for long time. We do calibrate, meet at lunch and off days [**Codes:** Calibrate/Time] to go over things we think we need calibration on. Need more hands-on calibration, not just verbal or understanding of concepts or how we're going to grade something. I think we need more hands-on especially with new faculty coming in [**Codes:** Calibrate/Collaborate/Hands-on learning together to calibrate].

Another way calibration can occur during clinic time is exploring residual calculus together after proficiency and calibrating on the differences [**Codes:** Calibrate/Collaborate]. Also, if there is not proficiency, just calibrating on initial calculus or on residual calculus during patient treatment. All instructors need to be participating in the process so one person does not feel singled out.

When there are instructors with different clinical experience, this is vital to calibrate [**Codes:** Calibrate/Communicate/Criteria] on the expectations of the students' final product – whether it be instrument sharpness, assessment of radiographs, calculus removal, or treatment planning. Otherwise the students are banging their heads against the wall.

14. What education (such as a workshop, ongoing training, learning module, etc.) would be helpful to assess students' clinical skills with more consistency among raters?

Need a real patient to calibrate [**Code:** Calibrate]. Workshops [**Codes:** Workshop/Faculty Development] you can go to with calibration exercises. I'm sure they exist where faculty can go. We should do it here with real patients [**Codes:** Workshop/Faculty Development/Calibrate]. Have to figure out how that would work. Maybe we don't charge a patient who would come in for calibration. We do what we need to for calibration, [**Code:** Faculty Development Idea] and then they come in to see a student and we don't provide services at no charge as a thanks for letting us use them as a patient. Maybe initially we could use a dentofom with the pieces on it but you really need the patient in the chair. You could watch a student giving anesthesia to another student and we could all calibrate. For calculus removal, we need to get in there and feel. We all feel it and then go what do you think. First have to come to a consensus on what our scale is and then from that scale we feel and go what do you think. Is it a I, II, III, IV. Then remove it, then what's the scale? [**Codes:** Clarity/Consistency/Defined Criteria] We would have to try and find someone who is a III or IV and then we would feel the piece initially and then have to agree on the size. Is it slight, moderate, or severe? We could go into is it flat, barnacle, shape and all that. But we have to agree on where it is on the scale from small to large and then we maybe half remove it and then we have everyone feel and say where do you think it is on removal and then maybe remove the entire piece but it's grainy. Then have everyone agree it's removed but it's grainy. Sounds awesome but might be hard to do on a patient. We all agree that this wouldn't be an error in spring quarter. With new faculty, doing each quarter as it presents itself is better than trying to

do every single proficiency for every course. Quarter by quarter. So in fall, here are our proficiencies so let's all pretend we're grading this. That's how I learn...hands-on. I don't learn from someone telling me. EX: If it's grainy, it's okay. That means nothing to me. What does grainy feel like? Everyone has a different idea of what grainy is. We're not going to be 100% calibrated but WREB has to be 75% or 85%. [Codes: Calibrate/Faculty Development/Consistency]. It's pretty high before they hire you so it can be done. It would be interesting to find out what they use when they calibrate? Dentoforms? Have we talked to other schools to see how they calibrate their faculty. Some don't seem like they're very calibrated. Some schools seem to have new people every year and it becomes impossible.

15. How do you follow the assessment grading scale and descriptions when performing a clinical skills assessment?

I read through proficiency if a student tells [Codes: Consistency/Clarity/Communication] me they want to do it to refresh my memory. If it's something I need to watch, I'll make notes on the assessment sheet and won't make any decisions until the experience is over. After I've gathered all data, I will make my decision. I read criteria [Code: Criteria] and follow it as given when it's given. Make notes as they're doing it.

16. Tell me about a time when you were not very pleased with your assessment of a student's clinical skills. Why were you upset with the assessment? What did you do to address the reasons for not being pleased?

It's really actually being in the moment in the assessment but not having time to actually assess the student because of the situation and I don't think the student was given a fair deal because I didn't allow her the opportunity because the time [Code: Time] wasn't there and we didn't accommodate it. We said you need to finish it up next quarter. I was willing to come in the next week and watch them work on each other but it didn't happen. Other than in the moment, sometimes if I don't feel like I'm confident in the assessment I'm watching. If it's something not written down or something I don't normally do and I'm trying to give feedback I'm upset because I don't feel good at the skill. When I'm inadequate in what I'm assessing. I feel inadequate giving feedback on a really complicated area.

17. Tell me about a time when you were not very pleased with the assessment of a student's clinical skills by another instructor. Why were you upset with the assessment? What did you do to address the reasons for not being pleased?

Not so much the assessment itself but how faculty interact with students. Talking down, intimidating [Code: Positive Communication]. I don't have the XX to go up to instructor and tell them you could have handled it differently. If they come to me and ask about it, I will tell them. Everybody assesses well here but sometimes we get stressed and a little snappy. At what point do you start meddling in other people's affairs? If I'm seeing it

then others probably are. Maybe it was a one-time situation with clashing personalities and then the next day it's okay.

Shouldn't bad mouth the decision that was made because the logic behind incompletes, was that the 5 people who all go incomplete all have to be treated equally. So if the one going incomplete for other reasons other than skills we make them go the first two weeks but then let the other people who it's just skills let them do it then it's not fair. So in a way it was a situation different kinds of incompletes. So we couldn't just separate the slow process person from people who just didn't get their things done. So what do you do? I felt that it was our problem, not the students' problem. We were learning computer system [Codes: AxiUm/Change/Stressful Environment], took on all new proficiencies, modifications of some and adding some. Not fair. What do you do when you have a mixture of students who went incomplete with different scenarios? We're supposed to be fair. Incomplete is incomplete. Case by case basis? I feel responsible for this so I'm willing to come in. We have a decision on whether the student should go incomplete or what is needed can be done on a different day. Computer is slowing everyone down. For us to go, sorry, that's not learner-centered at all. Putting blame on students. I feel students [Codes: axiUm/Stressful Environment] are being punished. Be respectful to students at all times. Watch our tone in how we come across. Be aware of ourselves and feeling safe to approach.

After reflecting on when I was not pleased with another instructor's assessment of a student: It is not fair to change the criteria for a proficiency example FMX proficiency for one student so that it is easier to pass. Example is allowing a patient that has two bridges and not the minimum of 28 teeth required for the proficiency. I had just told other students that they couldn't do the proficiency for that same reason. Instructors need to be consistent [Code: Consistency] and fair.

18. For the leads: What methods do you use to keep other clinical instructors informed with what is going on in your course regarding assessment? Adjunct: Do you feel that you are kept in the loop?

I don't always feel informed. There are times when it's totally been changed and I didn't know. Lack of consistency on established rules [Code: Consistency]. Rule or policy? I've been doing it this way for XX years and then it was decided it's not being done that way anymore. I asked other instructors and they didn't know about it either. I always follow up to make sure is it just me? Email communication is good. Usually a general consensus should take place before we decide to make a change. We need to make sure it's a full faculty decision, not just certain faculty. Everybody should have a word if it affects the students. I don't care about color of the wall, mailboxes, carpet because those decisions don't affect the students.

As faculty, 1) we should provide a safe environment, 2) we should be consistent 3) we should be fair [Codes: Safe Environment/Fair]. Being clear, can't just be verbal. We

can't just decide something and go that's the way it is. We have to have it written
[Codes: Criteria/Clarity].