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2014

Abstract

Effect of Active Learning on Students' Academic Success in the Medical Classroom

by

Sandra Hightower

MA, University of Phoenix, 1999

BA, University of Phoenix, 1997

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

February 2014

Abstract

Doctors in a Northern California community reported that medical assisting students did not use medical terminology in context, could not think critically, and faltered in decision making and problem solving during their internships in medical offices. The intent of this instrumental case study was to investigate the gap between current methods of lecturing and active-learning projects designed to engage medical assisting students in learning medical terminology, forming critical thinking skills, and developing decision-making techniques. Informed by a constructivist theoretical framework, data were collected regarding the teaching methods of 4 medical instructors through interviews and classroom observations. Documentation from the doctors and nurses whom graduates served upon matriculation was also reviewed. Open coding of data resulted in emerging themes. Findings showed that instructors were unsure how to implement activities to promote critical thinking, active learning in the classroom, and decision-making skills for students. As a result of this research, a 3-day professional development workshop for college instructors was developed, focusing on critical thinking and problem-based learning activities. This study may contribute to positive social change when medical assisting students graduate with the ability to use medical terminology in context, think critically, and provide satisfactory patient care, thus bringing valued expertise to patient care and offsetting the national shortage of labor in this sphere.

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Dedication

I dedicate this doctoral study to my Lord Jesus Christ. Without His guidance and leadership, I would not have been able to complete this venture. I also dedicate this to my dear husband, David Hightower; my family; and the Ladies Sunday School class. I appreciate your prayers, dedication, and encouragement.

Acknowledgments

I would like to give my heartfelt thanks to my husband and my family, all of whom sacrificed so much to see me through the EdD program. I would like to show appreciation to Dr. John Johnson, Dr. Watson, and Dr. Bail for their unending support and instruction. Without the support of Vera Grover, Muriel Dimel, and Richard Alexander, I would not have been able to move forward in this journey. Above all, I am grateful for my Lord Jesus Christ, who has strengthened me every single day.

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Section 1: The Problem

Introduction

Active learning is not a new term, and educators should not ignore or exclude it from adult learning. Young, Robertson, and Alberts (2009) stated, "University teaching popularly and historically revolves around the traditional 'chalk-and-talk' lecture method" (p. 41). In contrast, they explained, the active learning philosophy uses constructive and task-related activities to break up the lecture (Young et al., 2009). Researchers know that adults learn in different ways and want recognition as an integral part of their learning. Knowles (as cited in Cercone, 2008) said, "Andragogy is a learning theory that is designed to address the particular needs of adults, and is based on the idea that there are significant differences in learning characteristics between children and adults" (p. 137).

In medical assisting programs, instructors demonstrate that they know how to teach students by meeting their needs and by teaching what they need to know. Typical teacher-centered programs, however, are content heavy and focus on what faculty members want to teach, not what students need to learn (Candela, Dalley, & Benzel-Lindley, 2006). Instructors subject the students to lectures that, without any practical meaning, are boring and forgettable, and when students get to internship, they are unable to use medical terminology in context as it pertains to patient care.

Active learning projects such as case studies, debate, and group exercises can enhance learning and provide meaning. These projects engage students, encourage critical thinking, teach medical terminology in context, and help medical students solve problems. Active learning projects are learner centered rather than teacher centered

because they engage the student in activity, creating a learning environment of exploration. “The learners’ role in a learner-centered classroom is to participate actively and creatively in learning, using both the materials they study in the course and their own knowledge and language resources” (Liang, 2007, p. 12). “A central concept of learner-centered education is that teachers and students are both learners, working together to explore and develop students’ abilities” (Candela et al., 2006, p. 59). Active learning allows students to engage in activity that will enhance their learning by exploration.

Definition of the Problem

A student should be included in the process of learning and facilitating, and learning should be at the forefront of every instructor’s teaching plan. It is no longer acceptable to stand in front of a classroom of adults and give a lecture or read from the text. Instructors like to be in control of their classrooms, but there is a problem within that line of thinking. Saulnier (2009) stated, “Instructors find it threatening to give up some control and power—in the learner-centered approach faculty are no longer the sole content expert” (p. 3). In learning-centered curricula, a faculty member asks, “What do students need to learn?” rather than “What do I want to teach?” (Candela et al., 2006, p. 60). Active learning is about students, and the teacher is a facilitator of learning. The teacher can explain a concept and let the students become content experts.

Faculty members should be facilitators of learning with active learning projects instead of lecturing to a class of passive learners. O’Banion (as cited by Barrett, Bower, & Donovan, 2007) stated, “Pedagogically, the primary focus of higher education has shifted from the teacher to the learner” (p. 37). He continued to state, “Community colleges face significant challenges regarding curricular, teaching, learning, and

assessment practices due to this shift" (p. 37). The challenge in every classroom is to engage students in a way that allows each one to think critically and search for ideas without using a lecture alone.

This type of classroom interaction affects not only the students, but ultimately the future employers of these students. From a medical personnel perspective, Candela et al. (2006) explained,

> Rather than learning an increasing amount of nursing content, students need to learn how to make appropriate patient care decisions based on assessment and planning, credible evidence, critical thinking, and clinical reasoning. Other abilities needed by today's nurses are self-assessment, assessment, and lifelong learning. (p. 59)

Medical students need to know how to think critically and apply what they are learning to the real world. Merriam (2008) asserted that instructors can foster learning to reflect—using critical thought is itself a developmental process in adult learning settings. Doctors and office managers want medical assistants to apply what they have learned in the classroom to patient care and administrative duties in the office.

There is an absence of critical thinking and application skills among students in many colleges around the nation and internationally. Pundak and Herscovitz (2009) wrote about the diversity of attitudes of 153 instructors in Israel regarding active learning projects and the distinction between those who wanted to remain with the traditional lecture in the classroom. Internationally, the need is apparent for active learning projects to enhance critical thinking in the classroom. Additionally, Tiwari, Lai, So, and Yuen (2006) from the University of Hong Kong quoted *Tomorrow's Doctors* as saying that

"The UK General Medical Council recommends revised curricula aimed at promoting critical thinking development, professional knowledge acquisition, and lifelong professional learning" (p. 547). Teachers should embrace facilitation skills and make use of different active learning techniques so that students can apply their learning. Fata-Hartley (2011) concluded, "Many college science educators have moved away from the traditional lecture format and toward learner-centered classroom environments … rote memorization simply does not work and that students must be actively engaged to learn" (p. 36).

Learning-centered education shifts the focus from teaching to learning. "Faculty and students are both defined as active learners engaged in a cooperative effort to achieve defined outcomes" (Candela et al., 2006, p. 60). Every profession and every organization need critical thinkers, but medical students need to think critically to care for their patients. The Northern California college wants medical students to be the premier practitioners in the community.

I work at a regionally accredited private postsecondary school in Northern California that offers Associate of Arts (AA) and Associate of Applied Science (AAS) degrees in medical assisting, medical office administration, pharmacy technology, and medical insurance billing and coding. Medical terminology is a requirement for degree completion in each curriculum. The students at the college must complete an internship, and some are not able to perform in a medical environment. Based on the feedback from doctors' offices where the medical students begin internships, some of the students have difficulty applying what they have learned in class to practical patient care situations (A. Marion & S. Dulles, personal communication, October 10, 2010). One possibility for this

result is a lack of motivation to think critically in the classroom or engage in the material presented. Another explanation might be that the instructors are not challenging the students' abilities by presenting case studies on patient care scenarios. By the time medical students enter internship, they should be able to think critically and analyze situations regarding patient care.

An instructor can use different active learning projects to enhance learning and create a critical thinking environment. Kennedy (2009), a proponent of debate in the classroom, stated, "The lower-order thinking skills of knowledge, comprehension, and application focus on rote learning or *what* students should think, whereas the higher-order thinking skills of analysis, synthesis, and evaluation focus on *how* to think" (p. 226). As medical students enter their internships, the doctors want them to analyze situations and evaluate events that appear in the office. Kennedy uses debate to improve analytical skills and allow synthesis of material; the medical classroom is an excellent arena to provide this opportunity. Active learning projects in the classroom may help students apply their learning and use critical thinking skills. Hanson and Moser (as quoted by Scheyvens, Griffin, Jocoy, Liu, & Bradfords, 2008) asserted, "By utilizing learning strategies that can include small-group work, role play and simulations, data collection and analysis, active learning is purported to increase student interest and motivation and to build students' critical thinking, problem solving and social skills" (pp. 51-52). Researchers have used different approaches to learning in many different areas of education. Adult learners can be motivated with challenging exercises.

The instructors of the medical department, at the Northern California college, could use active learning projects in the classroom to assist students in the transition from

having no medical background to learning anatomy and physiology along with related medical terminology. Through active learning projects, students could apply learned terminology. Active learning projects are those that engage students in the classroom to think critically and apply learning. However, can active learning strategies move students from having no medical terminology background to having an understanding of medical terminology and the ability to think critically and apply learning?

Researchers have found that some faculty members oppose active learning. Michael (2007) conducted a survey with 29 instructors regarding barriers to active learning. Reasons faculty did not use active learning activities included the following: teachers did not know how to facilitate active learning; students lacked the maturity to do active learning; class size was an impediment; there were not enough resources available; too much time was required to prepare an active-learning course session; faculty did not want more activity in their classes; and faculty were fine with lecturing and allowing students to take notes. Indeed, "many faculty members believe that all learning is inherently active and that students are therefore 'actively involved' while sitting, taking notes and listening to formal presentations in the classroom" (Lowenthal, 2006, p. 2).

Should lecture alone assist in the application of medical terminology, or would active learning projects have a better result? Students learn procedures in the lab, and doctors and nurses expect medical students to go into internships and perform those tasks. If the students are not participating in their own learning, they become deficient when taking care of patients.

As students learn medical terminology and its correct application, they will be better able to give adequate care to patients. If a medical assistant is not able to care

adequately for a patient, this will affect a doctor's practice, not to mention that the patient will not have optimal care. The mission of the Northern California college is to prepare students for academic and professional success. Facilitating learning through active learning projects could be a starting point at the college. Merriam (2008) determined, "The one thing that all of us, educators of adults have in common, regardless of our work setting or learner population, is that facilitating learning is at the heart of our practice" (p. 93). Facilitation is important when using active learning because it engages the student. In contrast, a lecture does not allow for thinking; it is passive.

It is essential that medical students have active learning or a learner-centered approach to keep them engaged, for it can enhance their ability to think critically. It is important for students to apply medical terminology in the clinical setting or in another real-life application. "When students reflect on content, they apply it to their own lives or situations in the world" (Alsardary & Blumberg, 2009, p. 409). As students complete projects that teach them to use medical terminology in the correct context and use critical thinking skills, the employers in the community will reap the benefits when these students begin their internships and apply for jobs. Thus, instructors should encourage students to engage actively in content.

Problem Rationale

The intent of this study was to investigate and bridge the gap between the current methods of lecturing at the college and active learning projects that serve to enhance learning while engaging students in learning medical terminology, forming critical thinking skills, and developing decision-making techniques. Twenty years of research have shown that using interactive techniques more often improves learning (Gray &

Madson, 2007). Faculty members need mentoring to learn how to employ facilitation techniques of learning through active learning projects.

The college at which I conducted this study, located in Northern California, is a 2-year, private college where adult learners obtain degrees in programs that offer hands-on training in medical practices and procedures. These students must be taught in a way that will enhance their productivity in their internships and ultimately in the workplace. The instructors at the college want to provide the students with all of the resources necessary to shape them as highly motivated personalities and qualified candidates for jobs in the medical community. In order to be qualified, students must know and appropriately use the language of medicine. When students attend their internships in medical offices in the community, however, office managers and doctors report that they are not using medical terminology in the appropriate context with patients (S. Dulles, C. Irma & N. Moniqu, personal communication, February 18, 2011). It is our goal, as an institution, to retain our students in class and prepare them for an internship with the ability to apply medical terminology and the skills to use the proper terminology in doctors' offices. Adult students at the Northern California college do not want to be passive learners but want a challenge with innovative and creative facilitation techniques.

Research has proven that facilitation is the preferred approach to teaching adult students. The Internet and global communication have supported this new learning approach. In this approach, as described by Knowlton (as cited in Barrett, Bower, & Donovan, 2007), "The instructor facilitates learning by gathering information from learners and, guided by their needs, assists them in exploring their interests and accomplishing learning goals" (p. 39). The educational community should consider

studying active learning and the learner-centered approach so that teachers can make changes in curriculum and delivery and bring students to a better understanding of the objectives in the course.

Special Terms

Several key words are worth reviewing to understand the concept and importance of active learning, learner-centered education, and critical thinking.

Active learning is a process where the student is involved in hands-on learning in the classroom. Lavoie and Rosman (2007), stated, "Active student-centered learning seeks to engage students and faculty in the learning process to promote a deeper understanding of content than passive lecture-based learning" (p. 105).

Constructivism is an approach where the teacher is a facilitator of learning. Hourani (2011) stated in his research on constructivism and social studies that "constructivism intends to refine students' knowledge, develop inquiry skills through critical thinking, and lead to students developing opinions about the world around them" (p. 231).

Learner-centered education puts the learner at the heart of the classroom, rather than the instructor. "Learner-centered classroom practices engage students in activities that require reasoning, discovering, problem solving, data gathering, application, and communication of ideas" (Golightly, 2010, p. 234).

Critical thinking is deeper thinking that involves asking questions and looking for analysis. Hourani (2011) contended, "Social studies constructivist learning is enhanced when students begin processing what they have learned on multiple levels, which leads to higher-level thinking and strays away from strict factual information" (p. 231). "Critical

thinking has been conceptualized as a set of skills that people can learn and apply in their everyday or professional lives" (Finn, 2011, p. 69).

Student learning outcomes are those items educators want students to learn and use. In explaining the word *outcomes*, Suskie (2009) stated, "Outcomes are goals that refer to a destination rather than the path taken to get there, the end rather than the means, the outcome rather than the process" (p. 116). Furthermore, "Learning outcomes are goals that describe how students will be different because of the experience" (Suskie, 2009, p. 117).

Significance of the Problem

This study may contribute to ongoing professional development programs for faculty in medical colleges around the country. As faculty members learn how to facilitate learner-centered programs with active learning projects, students should increase their ability to think critically and make sound decisions; moreover, they will be able to apply the information from the classroom in their place of business. The Northern California college could implement active learning as a way to meet and achieve student-learning outcomes. Scheyvens et al. (2008) asserted, "Active learning is most effective when it is used to achieve course and program objectives and learning goals (Mathews, 1999), rather than simply being conceived as a type of toolbox of classroom methods which can be dipped into from time to time" (p. 65). Learning happens when instructors apply different methods to the classroom to reach the student learning objectives.

Although considerable evidence has surfaced noting active learning as the best approach in the classroom, some opponents of active learning have sought to disprove this theory. Hockings (2009), for instance, indicated that active learning was ineffective

for 30% of the 200 students in her study. Hockings continued, "Literature shows, the main criticism, it appears, is not to focus on the approach per se, but rather on the way it is implemented" (p. 84). Some instructors at the Northern California college feel threatened by the use of the terms *active learning* and *student-centered approach*.

Michael (2007) conducted a survey with 29 instructors to gain insight into perceived barriers to active learning for faculty in five schools. Two of the barriers to active learning that appeared on many lists from the faculty "were active learning requires too much preparation time and the classrooms where we teach does not lend themselves to active learning" (p. 43). The participants were also concerned with lower scores on class evaluations and criticism from fellow faculty members (Michael, 2009). Even though criticism from fellow faculty members may be a concern, there are advantages to active learning. It is more important to bring students to a clear understanding of medical terminology than to worry about implementing active learning into a classroom curriculum.

Whether the faculty delivers standard lectures or implements active learning, engagement is a key component when it comes to any activity in class. Richardson (2007) asserted, "Numerous articles have been published on the merits of active learning, and collectively they present a body of compelling evidence that these methods do enhance learning" (p. 23). A key component of learning in any classroom is the ability to engage students. Active learning activities will only enhance the classroom experience, making projects and learning fun and helping students retain the information.

Students' inability to think critically is challenging more and more educators to review their theories of teaching and engage students in the classroom. The curriculum at

the Northern California college has student learning outcomes (SLO) for each course, and the organization directs the instructors to ensure that the students achieve these outcomes. How can instructors use a learner-centered approach to help students achieve the learning outcomes in class? A learner-centered approach takes the focus from the instructor and turns the attention to the student. Does active learning assist in the process of meeting benchmarks and learning outcomes? "Learner-centered programs identify student-learning outcomes that are reflective of nursing practice and provide experiences to move students toward achievement" (Candela et al., 2006, p. 59). Some instructors use active learning in the classroom and have seen results in the past few years.

The Northern California college curriculum has student learning outcomes designed to engage students and assist them in learning, but the gap in practice, in the classroom, causes a breakdown. This gap manifests itself in some students going into the field without a clear understanding of medical terminology and in their failure to use terminology in context. Students should be able to use medical terminology and critical-thinking skills to make informed decisions regarding patient care. Scheyvans et al. (2009) stated,

> Problem based learning (PBL) is an instructional approach that uses problems as a context for students to develop content knowledge and problem-solving skills. It is a particular type of active learning which requires students to work together in small groups to find solutions to real-world problems. (p. 68)

It is not enough to learn the content of the course; students need to apply the information and make critical decisions regarding patient care. "Rather than learning an increasing amount of nursing content, students need to make appropriate patient care decisions

based on assessment, critical thinking, and clinical reasoning" (Candela et al. 2006, p. 59). They must have active learning projects to enhance their learning. Candela et al. (2006) asserted, "Passive one-way transmission of knowledge that served earlier generations is inadequate to prepare current students to meet the challenges in today's complex health care systems" (p. 60). Instructors use lectures and give exams that require memorization. A lecture is a passive form of information transmission, whereas active learning projects give meaning to learning that enhances critical thought.

An adverse effect will develop if educators do not work to bridge the gap between lectures in the classroom and active learning projects. Active learning will increase the ability to think critically and apply skills in the workplace. The stakeholders involved in this process are medical colleges, faculty, doctors, medical staff, and, ultimately, patients.

College instructors around the country have begun to change their approach in the classroom to reflect new practices. Wang, Woo, and Zhao (2007) maintained that "critical thinking and knowledge construction have become essential competencies for people in the new information age" (p. 95). Gray and Madson (2007) declared, "It is not how much the instructor covers in class that determines how much students learn. How much students learn instead is related to how active learning is" (p. 85). Students engaged in active learning projects such as debate, case study, and role-playing activities that enhance their critical thinking skills and increase their ability to apply new information in a contextual manner.

Guiding Research Question

The intent of this qualitative study was to investigate and bridge the gap between the current methods of lecturing at the Northern California college and active learning

projects that serve to enhance learning while engaging students in learning medical terminology, forming critical thinking skills, and developing decision-making techniques. The participants in this case study were four medical terminology instructors at Northern California college. It was important to ask the right questions in participant interviews and be specific with the participants. The participants assisted in answering the study's research question in their responses to each interview question.

Research Questions

The research questions guiding this study were the following:

1. How does an active learning classroom environment influence a student's academic success?
2. To what extent does the use of active learning techniques in the classroom improve the quality of instruction?

Interview Questions

As the two research questions guided the study, the following interview questions were used to explore classroom activities and gain insight regarding the effectiveness of active learning in the classroom. (For additional probing questions, see Appendix C.)

1. In an effort to meet the mission of preparing students for academic success and understanding medical terminology, how do you think employing active learning projects in your classroom affects the students' understanding of medical terminology?
2. What types of activities could the students participate in to increase their knowledge and application of medical terminology?

3. To what extent were the students able to make medical terms applicable to patient care?
4. How were you able to implement an activity to ensure the students' ability to understand the implications of medical terms as each applied to a specific patient case?
5. How did your daily activities link to the lesson plan?

The interview questions and subsequent probing questions (Appendix C) enabled the participants to think about and reflect on their classroom activities.

Literature Review

Active learning projects such as case study, debate, and group exercise are a few examples of how instructors can enhance learning in the classroom. Lectures are useful, but additional activities should be required to enhance learning and prepare students at the Northern California college for internship. "The term active learning covers a wide variety of learning strategies aimed at encouraging active student participation in learning ('learning-by-doing')" (Scheyvens et al., 2008, p. 51). In a study on student learning, Tyler (as cited in Bates, Baum, & Assinder, 2010) stated, "Learning takes place through the active behavior of the student. It is what he (sic) does that he learns, not what the teacher does" (p. 358).

Constructivist Theory

Medical assistants need to employ critical thinking techniques when dealing with patients. As they move through their course of study, facilitators will teach critical thinking techniques. Gordon (2009) clearly stated, "In the past few decades, a constructivist discourse has emerged as a very powerful model for explaining how

knowledge is produced in the world, as well as how students learn" (p. 39). Case study analysis is an excellent technique to use with medical assistants. "Constructivist learning strategy was facilitated through the introduction of case-based learning tasks that promote active student learning, and augment the acquisition of team working, communication, and problem-solving skills" (Hartfield, 2010, p. 20). Each patient is different and medical assistants will use critical thinking and creative thinking in each scenario regarding patient care. "Critical thinking includes the ability to be creative and constructive—the ability to develop alternative explanations for events, think of implications of research findings, and apply new knowledge to social and personal problems" (Finn, 2011, p. 70).

As Lew (2010) explained, the constructivist teacher understands and uses constructivist principles by

- encouraging and accepting student autonomy, initiation, and leadership;
- allowing student thinking to drive lessons and adapting content and instructional strategy based on student responses;
- asking students to elaborate on their responses;
- allowing wait time after posing questions;
- encouraging students to interact, both with the teacher and with one another;
- asking thoughtful, open-ended questions;
- encouraging students to reflect on experiences and predict future outcomes;
- asking students to articulate their theories before requiring them to present understanding of the concepts; and
- looking for students' alternative conceptions and designing lessons to address

misconceptions. (p. 11)

Constructivist learning is about action and has a learner-centered approach that transforms learning and learners.

Active learning with learner-centered teaching will enhance the quality of education in the classroom. Constructivism is about change through transformational learning. “Teaching should promote experiences that require students to become active scholarly participators in the learning process” (Gordon, 2009, p. 39). Constructivism is active. Students want to be and should be involved in their own learning and be responsible for their education. “At the heart of constructivism is the idea that learning is neither passive nor a copying process. Rather, it is a process of active participation” (Lew, 2010, p. 10). Action is a component of transformational learning, and it is important that medical faculty view active learning as component of social change as it affects curriculum and how the students perform in the medical community. According to Lew (2010), “A priority of the 21st century is real learning; that is, learning that includes the ability to think and to apply scientific knowledge for individual and social purposes, as opposed to merely memorizing and recalling facts” (p. 10).

Wang, Woo, and Zhao (2007) explained, “Critical thinking and collaborative knowledge construction have become essential competencies for people in the new information age and the global economy” (p. 95). The 21st century is an informational age, and both students and patients live in a technological world. It is necessary to encourage critical thinking in each classroom. The students have to understand medical terminology; they must use it in context, add critical thinking, and apply decision-making skills in each patient situation. “Constructivism intends to refine students' knowledge,

develop inquiry skills through critical thinking, and lead to students developing opinions about the world around them" (Hourani, 2011, p. 231).

Students involved in active learning projects in the classroom are at the heart of constructivism. Wang, Woo, and Zhao (2007) quoted Jonassen as follows: "The basic belief of constructivism is that knowledge is actively constructed by learners, who are active knowledge constructors rather than passive information receivers" (p. 96). Medical assisting students want to be involved in their own learning, rather than being passive learners. Constructivism is active learning and if used in the medical classroom will produce caregivers that can critically think and solve patient problems. "All forms of constructivism understand learning to be an active rather than passive endeavor. Learning occurs through dialogue, collaborative learning and cooperative learning" (Merriam, Baumgartner, & Caffarella, 2007, p. 292). As medical assisting students go to internship, they will be able to use those techniques learned in a collaborative classroom. The constructivist teacher facilitates and negotiates meaning making with learners to include experiential learning and transformational learning (Merriam, Baumgarter, & Caffarella, 2007). Facilitators have an obligation to use many different approaches in the classroom. Learning can be self-directed with leaderless teams. Aspects of constructivism can be found in self-directed learning, transformational learning, experiential learning, situated cognition, and reflective practice (Merriam et al., 2007). Grier-Reed and Conkel-Zeibell (2009) stated that in the constructivist classroom, "the teacher is considered the facilitator of learning rather than all-knowing expert, and the process of learning is considered just as important as the outcome "(p. 25). Active learning is constructivist in nature because it uses play to make meaning of the information. The teacher facilitates the exercise, but the

students make meaning from it. In this model, the exercise encourages exploration and helps them draw conclusions. “Play and negotiation are key elements for developing collaborative inquiry. Play makes room for imagination in the classroom, which facilitates creative approaches to problem solving and permission to question, investigate, and hypothesize” (Grier-Reed & Conkel-Zeibell, 2009, p. 25). Case-based learning (CBL) and problem based-learning (PBL) have roots in the constructivist education paradigm known as *discovery learning*. “The foundational theory of discovery learning was formulated and advanced in the 1960s as “learning by doing” through inquiry-based instruction and learning” (Hartfield, 2010, p. 22). Learning by doing is the premise for active learning and constructivist theory.

Active Learning

Active learning involves students in doing activities and in reflective thinking about those activities. “In the past decade, a major shift has taken place in education; that shift is toward active learning. Teachers that have used this approach generally find that the students learn more, that the courses are more enjoyable” (Limbach & Waugh, 2010, p. 5). Active learning can improve productivity and ensure that students are better able to understand the content. The students in an active-learning classroom are able to be creative and make meaning of the class work. “In contrast to teacher-centered approaches, active learning approaches encourage students to become active, motivated, and independent learners through open communication and collaboration” (Matveev & Milner, 2010, p. 201).

Many researchers have conducted studies with positive results for active learning in the classroom. The following study by Grimley et al. shows how students feel more

involved in their learning, and they appreciate the opportunity to learn under circumstances other than lecture. Grimley, Green, Nilsen, Thompson, and Tomes (2011) conducted a study with first-year students in a Bachelor of Arts Education course using computer games and comparing it with lectures. They reported,

> The results indicate the computer game mode invoked perceptions of a more active and challenging learning experience compared with more traditional lectures. If we have a constructivist view of learning then ensuring that learners are active and challenged in learning situations is of paramount importance. (p. 52)

Faculty can use debates in class to bring meaning into the learning environment. Debates encourage critical thinking and problem solving in every aspect. Kennedy (2009) argued that through debates, "students learn more effectively by actively analyzing, discussing, and applying content in meaningful ways, rather than by passively absorbing information" (p. 225). Formal debates in the classroom add depth to the information. The students in a debate are not only learning how to speak in a group setting, but also using critical-thinking skills to form an argument.

Every student learns differently, and an active learning model will improve understanding. In a study on memory and active learning, Cherney (2008) stated, "It is important to consider presenting information in multiple modalities to accommodate different learning styles" (pp. 154-155). Students are individuals, and each learns in a unique way. It is important for facilitators to find the key learning styles and then employ them in the classroom. Kennedy (2009) stated, "Students place a higher value on learning by participating than on learning by being lectured at and receiving information

passively" (pp. 225-226). Lectures can be effective if used in conjunction with active learning activities. Cavanaugh (2011) noted, "The benefits of active learning in lectures are maximized when tasks are authentic and reflect how knowledge is used in real life" (p. 24).

Instructors in many disciplines have used active learning in the classroom to help students apply learning (Kennedy, 2009). In medical assisting specifically, it is necessary to teach students theory, but they must have the ability to apply the theory to real-life situations. Learning how to apply theory to real life is important for medical assistants. Giving case studies as an assessment tool, will allow the medical assisting students to connect the theory learned in the classroom with real patient scenarios. "Assessment findings indicate that students are able, through application of theoretical concepts to field observations, to connect theory to the ''real world'' and connect theory and methods" (Pederson, 2010, p. 197). Bloom et al. (as cited in Scheyvens et al., 2008), noted, "A common goal of the strategies and methods of active learning is the facilitation of higher-order thinking skills, not just knowledge and recall of facts, but comprehension, application, analysis, synthesis and evaluation of knowledge" (p. 52).

Corey wrote about using active learning projects in an urban history class. He found that active learning is a viable approach in the classroom. Although this was an urban history class, facilitators can apply active learning in any classroom. The top-down approach to learning has become outdated and mundane. Active learning has various definitions, but each seeks to enhance the educational experience. Innovative and engaging pedagogy stresses inquiry from a student's perspective and inquisitive thought process (Corey, 2010). Active learning occurs when students take an active role in

processing information to enhance learning. “This can be contrasted with passive learning characterized by the receipt of information to be learned through passive means like lecturing or reading from a set of notes prepared by the professor” (Chu & Libby, 2010, p. 245). Students need to engage in class rather instead of sitting passively and taking notes. Vandiver and Walsh (2010) taught a research class and prepared the students to think critically, contextually, and independently. By Vandiver and Walsh using active learning in the classroom, the students were able to apply their findings to social problems, and they had a greater understanding of the material at the end of the semester. While teaching the research process, instructors need to demonstrate how the research process and the findings apply to social problems, because doing so serves to benefit society. Students retain information because active learning is not about memorizing; rather, it is about engaging students, motivating them, and helping them in the application of the material. Active learning is about motivating students to learn and then empowering them to apply the material and make meaning of ideas. Cherney (2008) stressed, “active learning enhances student retention of concepts, particularly when the students are the authors of their own learning” (p. 155).

Learner-Centered Education

What do colleges and universities do, and what is their mission? “The traditional, still dominant paradigm is the Instruction/Teaching Paradigm. In this paradigm, educators view a college as an institution that exists to provide instruction” (Saulnier, Landry, Longenecker, & Wagner, 2008, p. 169). The mindset of the faculty has to change to meet the needs of this paradigm shift. Colleges do provide instruction, but the new paradigm is to allow students to invest in their own learning. A new shift in the paradigm is apparent.

"The Instruction Paradigm, a specific delivery methodology, the lecture, determines the boundary of what colleges can do, whereas in the Learning Paradigm, student learning and success set the boundary" (Saulnier, et al., 2008, p. 170).

Learner-centered education includes a student-focused teaching and learning environment, instead of a teacher-centered environment (Liu, 2008). Activities for learner-centered education can be fun, and each student can benefit. They are able to take their learning and apply it to a real world scenario. "Activities include but are not limited to solving relevant and real problems, providing resources, using contracts for planning and evaluation, forming learning groups, programmed instruction adapted to individual needs, encounter groups, using the community, and peer tutoring" (Cornelius-White, 2007, p. 114). A true learner centered process is about making sure the students understand and are learning rather than just teaching the curriculum. "To fully achieve learning-centered curricula, program outcomes must focus on what students need to know to be effective entry-level nurses" (Candela et al., 2006, p. 60). Candela et al. (2006) suggests learner-centered education allows students to take an objective of a course and apply it to life. A committee composed of 30 faculty members and other professionals conducted research at State University of New York (SUNY) to investigate the meaning of learner-centered approach or learner-centered college.

> They concluded that the faculty members characterize learning centered approaches as those that give attention to student motivation, discovery learning strategies, a holistic view of students, assessment choices, remedial opportunities, and respect for students' prior experience—many of the "teaching characteristics" themes that emerged in our study. (Bosch et al., 2008, p. 96)

This approach does not use a single teaching method; "it emphasizes a variety of different types of methods that shifts the role of the instructors from givers of information to facilitating student learning or creating an environment for learning" (Alsardary & Blumberg, 2009, p. 401). Active learning is student-centered and the facilitator engages students. The student is now responsible for learning and creating a new learning environment. Blumberg (2009) stated, "In an instructor–centered course, the focus is on covering the content and helping students build a knowledge base, whereas a learner-centered instructor helps the students engage with the content and apply the material, and helps the student understand why they need to know the content" (p. 73). Learning-centered learning is no longer about teaching but focusing on all aspects of activity. This new facilitative approach allows students to focus on content and application. Kramer et al. (2007) reported, "This approach focuses on all aspects of learning and the learning process, as opposed to teaching" (p.186). Activity and learning is not a new approach and centers around material retention and application. Kramer et al. (2007) quoted Weimer (2002), "Attention is given not only to what the student is learning, but how the student is learning and whether the student is able to retain and apply this knowledge" (p. 186). The priority, in learner-centered classrooms, should focus on the students learning (Liang, 2007).

This learner-centered approach to learning is a global university community issue. Many schools around the world are interested in using a learner-centered approach to education. At the heart of teaching is the desire for students to have the best learning outcome and the learner-centered to education is meeting this need. South African has had a change in education to include language and concepts such as lifelong learning,

learner-centered classrooms, process-oriented learning, participative teaching, and problem-based learning (Lombard, 2008). His research in South Africa suggested "learning-oriented assessment as a strategy for improving students' critical thinking competence" (Lombard, 2008, p. 1030). At the University of Toronto, clinical educators proposed that the learner-centered approach as a means to efficient and effective teaching. It is imperative that residents and medical students maximize learning due to busy clinical schedules (Lacasse, Lee, Ghavam- Rassoul & Batty, 2009). Using a learner-centered approach and active learning in education, medicine, nursing, medical assisting, information technology, and other majors in college will provide benefits to all students. Small groups and mentoring have been instrumental in the medical courses, but now information technology has benefited with the implementation of active learning projects.

Wohlfarth et al. (2008) reported on a study by Jones and Wells where "they examined how teaching informational systems development was improved by using a more collaborative, mentoring style instead of a traditional lecture-base" (p. 68). Wohlfarth, et al. (2008) reported Jones utilized small work groups, personal work portfolio, and student driven classroom experiences and reported higher grades among students.

Critical Thinking

Ruggiero (2007) said 'Critical thinking is a special kind of thinking devoted to the evaluation of ideas. It relates to testing the accuracy of statements and the soundness of the reasoning that links them" (p. 11). Ruggiero (2007) quoted Dewey , "Thinking is inquiry, investigation, turning over, probing or delving into, so as to find something new or to see what is already known in a different light" (p. 12). If educators only focus on

content, the information taught might not be useful if one changes careers. However, many times individuals change careers, and critical thinking skills will move them forward (Kennedy, 2009). As teachers, we must observe how our students are learning, and what skills they are retaining, rather than just the content of the course.

Facilitators of learning must understand that learning is much more than memorizing facts, but is a process. This process leads to a compilation of learning that individuals will use after graduation. "Teaching approaches must focus on elements relating to the processes of learning, rather than the accumulation of knowledge—to develop graduates with capabilities to improvise, adapt, innovate, and be creative" (Thomas, 2009, p. 245). When colleges and universities start graduating students that can improvise, adapt, innovate and create, then social change will begin because workers will be critical thinkers. The ability to think critically is an essential discipline for the formation of mature, thinking, autonomous, proactive, and a creative person that is able to adapt to a broad spectrum of social and other opportunities (Tolutiene, 2010).

Critical thinking constitutes particular skills, such as the ability to assess reasons properly, to weigh relevant evidence, or to identify fallacious arguments. Critical thinking is a critical attitude where students ask probing questions, and this significant orientation, is part of their character (Mason, 2007). "We do not want students to accept blindly what they are told; we expect them to challenge assumptions, conduct research, and form their own opinions" (Stepanovich, 2009, p. 725). Medical assistants especially have to be able to think critically, make decisions, and solve problems. Finn (2011) believed, "Critical thinking is the ability and willingness to assess claims and make objective judgments on the basis of well-supported reasons and evidence rather than

emotion or anecdote" (p. 70). Lombard (2008) argued the need for critical thinking is evident, but is more concerned that the students' thinking ability reflects competence. Kaddoura (2010) concluded, "Simulation presents real-life practical problems that demand active engagement of learners in critical thinking and build learners' confidence in their decision-making abilities" (p. 507). Although Morgado (2010) was studying the effects of lectures vs. active learning in large classrooms, she was able to establish through active learning that her art students increased their critical thinking ability and were able to demonstrate understanding of art and design.

Student Learning Outcomes

Many colleges and universities use student-learning outcomes to assess proficiency during and after the course**.** Suskie (2009) explained those faculties do what they do because of the end-result. For years accrediting bodies, administrators and faculty have had conversations about student learning outcomes (SLO). **"**Goals, objectives, competencies, learning outcomes, and proficiencies all describe what we want students to learn" (Suskie, 2009, p. 116). The Council for Higher Education Accreditation (2002) stated, "Information about student learning outcomes is important to government, students, and the public because these constituents increasingly tie judgments about the quality of an institution or program to evidence of student academic achievement" (Long, 2008, p. 120).

Meyers and Nulty (2009) asserted, "The careful application of the five specified principles of curriculum design aids in the creation of learning experiences which produce superior learning outcomes" (p. 575). Adult students want to know why they are learning material and how will it affect them, and more importantly, how will they be

able to use it. Lehman (2011) stated, “Adult student success isn’t only measured inside a classroom, and for adult students to truly succeed, an institution must offer a quality curriculum that delivers the learning outcomes that the workforce demands” (p. 22). Student learning outcomes should closely tie to the curriculum, should be measurable, and will answer these questions for the adult learner. Meyers and Nulty (2009) believed to maximize the quality of student learning outcomes, we, as academics, need to develop courses in ways that provide students with teaching and learning materials, tasks, and experiences which include the following:

1. are authentic, real-world and relevant;
2. are constructive, sequential, and interlinked;
3. requires students to use and engage with progressively higher order cognitive processes;
4. are all aligned with each other and the desired learning outcomes; and
5. provide challenge, interest, and motivation to learn. (p. 567)

Active learning and cooperative learning can help students achieve the student learning outcomes set forth in the course. Yamarik (2007) facilitated two courses in macroeconomics. In the first class, he used lecture and in the second class he used cooperative learning utilizing small groups. He concluded that the cooperative learning students scored higher on the exams and met the learning outcomes in higher numbers than the class where he utilized his lectures. The students interacted with the instructor, felt comfortable asking questions, and were able to learn from other students and the instructor. .

Implications

Instructors and academic leaderships continue the debate as to whether to use active learning in the classroom. A professional development program might be developed that would help the instructors learn how to implement active learning projects in the classroom. Bedgood et al. (2010) wrote about a teacher-focused leadership initiative to build a student-centered teaching environment in university academics. The medical curriculum at the College has the student-learning outcomes, but medical students should meet those outcomes through the active learning projects while reaching the benchmarks. Bedgood et al. (2010) explained this initiative will improve student learning, engagement, retention and performance and the authors went on to say they could accomplish this in all universities. Active engagement is a goal at the College and retention is the premiere objective.

It is important to prepare students at college to be successful in their chosen medical field. Developing a full active learning program could prepare students in the medical department for work in doctors' offices and clinics. When students begin internships in doctors' offices, they must be prepared to administer excellent patient care. If they are unprepared to give proper, medical care, this becomes a social issue because so many more people are ill and need professional care.

It is time for social change, and the implications of bright, professional, critical thinking medical professionals in the workplace would be a new beginning. "Thinking is the cognitive process used to make sense of the world; questioning everyday assumptions will direct students to new solutions that will positively impact the quality of their lives"

(Limbach & Waugh, 2010, p. 2). As new medical assistants start thinking through each issue in the medical arena, it will assist the doctors, and it will improve patient care.

An instructor can create an environment to learn and promote critical thinking in a variety of ways. Utilizing problem based learning gives a student a sample of critical thinking with an outcome. These criteria have a big impact on students' learning: active processing of information, activating of previous knowledge, relevant content, opportunities of knowledge organization, management, and improvement. Each patient needs attention and medical assistants will be able to determine the right course of action. In a study by Tolutiene (2010), according to students, "Their critical thinking in university studies is developed in various ways and applying a variety of methods: group work, discussions, project work, talks, sharing experiences and reflections, case analyses, participatory lectures, and brainstorming" (p. 74). Through an active learning process, students will engage and be able to utilize knowledge gained.

The results of the surveys may determine how to move forward with an evaluation for the instructors. A program such as a simple professional development session each quarter or a monthly update could help faculty engage students in the classroom, and ongoing classes might assist the instructors in their facilitation methods.

Summary

Section 1 introduced a problem at the College where a deficiency exists of active learning projects used in the classroom and medical assisting students are at a deficit during their internship. Studies have proven as mentioned in the section, that active learning projects show dramatic results in student learning outcomes and utilization of material learned. The impact on the stakeholders is vast because medical assistants who

do not have the ability to apply medical terminology to everyday activities will work with doctors, nurses, and patients, thus minimizing patient care. Section 2 will describe the methodology; Section 3 will be the project, concluding with reflections and conclusion in Section 4.

Section 2: The Methodology

In this case study, I used an instrumental approach and combined it with constructivist theory to pilot a study regarding active learning projects in the classroom. Yin (2011) categorized case studies as explanatory, exploratory, or descriptive. Stake identified case studies as intrinsic, instrumental, or collective (Baxer & Jack, 2008, p. 547). Baxter and Jack (2008) explained Yin's explanatory approach to case study as follows:

> This type of case study would be used if you were seeking to answer a question that sought to explain the presumed causal links in real-life interventions that are too complex for the survey or experimental strategies. In evaluation language, the explanations would link program implementation with program effects. (Baxter & Jack, 2008, p. 547)

The problem, as discussed in Section 1, exists at the Northern California college because the medical students do not engage in active learning projects in the classroom, and this may have adverse effects on their ability to apply their learning. The four faculty members teaching medical terminology at the campus use lecture as a primary delivery method in the classroom, and the campus president is aware of the increasing problem in this area of students' inability to apply classroom theory in an internship.

A case study is the best way to approach this issue with the students in the medical program. Noor (2008), asserted,

> Case study is not intended as a study of the entire organization. Rather, it is intended to focus on a particular issue, feature, or unit of analysis. In order to

> understand and examine processes of training activities in organizations, case study method was chosen. (p. 1602)

The following information demonstrates that case study represented the best approach to a study of this issue at the college.

Research Design and Approach

I used a qualitative method as an approach to this study. “Developed in the late 1800s and early 1900s for fields other than education, qualitative research presents an alternative to the traditional form of quantitative research. Qualitative research has become more apparent in education in the last 30 years” (Creswell, 2008, pp. 48-49). Many more researchers are using this approach, especially in the professional fields. “By now, qualitative research has become an acceptable, if not mainstream, form of research in many different academic and professional fields” (Yin, 2011, p.7).

> Moreover, qualitative research offers greater latitude in selecting topics of interest because other research methods are likely to be constrained by: The inability to establish the necessary conditions (as in experiment); The unavailability of sufficient data series or lack of coverage of sufficient variables (as in economic study); The difficulty in drawing an adequate sample of respondents and obtaining a sufficiently high response rate (as in surveys); Other limitations, such as being devoted to studying the past but not ongoing events (as in history). (Yin, 2011, p. 6)

Creswell (2008) explained that in qualitative research, an exploration is required in which little is known, and such research requires a detailed understanding of a central

phenomenon. The questions are general and broad; one seeks to learn from participants; data analysis tends to develop themes; and reporting consists of a wide range of formats.

The medical assisting students at the college in this study had demonstrated an inability to understand or apply medical terminology in a real-life scenario related to patient care, and a qualitative study was deemed the best means of understanding the reasons behind this phenomenon. Qualitative research is about understanding an issue or event, and I wanted to understand why the medical assisting students were unable to apply medical terminology adequately. "Qualitative researchers build toward a theory from observation and intuitive understandings gleaned from being in the field" (Merriam, 2009, p. 15).

In this case study, it was important to use words to describe the issue and its resolution at the Northern Californai college. Merriam (2009) noted, "Words and pictures rather than numbers are used to convey what a researcher has learned about a phenomenon" (p. 16). There were only four instructors who taught medical terminology at the campus; this small sample size also fit into the qualitative approach. Merriam (2009) stated, "Sample selection in qualitative research is usually (but not always) nonrandom, purposeful and small" (p. 16). "Unlike qualitative research, quantitative research tends to address problems requiring a description of trends or an explanation of the relationship among variables" (Creswell, 2008, p. 51).

Quantitative research was considered for this study. As Creswell (2008) explained, quantitative methods have an emphasis on collecting and analyzing information using numbers; collecting scores for measurement; and procedure, comparisons, and correlations. The quantitative method of research was deemed not

suitable for the research at the Northern California college, as it would be more beneficial to gather information from broad questions and seek to understand any themes that might be part of the problem at the college.

Even though the mixed methods approach has a qualitative component, I determined that it would not be viable for the research done at the Northern California college. Mixed methods research involves a combination of quantitative and qualitative information. There are barriers to the mixed method approach such as the researcher having an in-depth understanding of both a quantitative and a qualitative research process; further, the mixed method approach is very time consuming and requires extensive data collection and analysis (Creswell, 2008). This study at the Northern California college did not have a quantitative component, as in comparing variables.

In addition to case study, there are other types of qualitative research, including ethnography, phenomenology, grounded theory, and narrative analysis. I considered each type of qualitative research and decided on a case study approach. Merriam (2009) described several types of qualitative research, and after careful consideration of Merriam's descriptions, I determined that case study seemed most appropriate for this research. When considering ethnography, I determined my research would not be about a certain culture or group. "The factor that unites all forms of ethnography is its focus on human society and culture" (Merriam, 2009, p. 27). Phenomenology is about a lived experience where the researcher explains everyday life, grounded theory is useful for addressing questions about process; and narrative analysis is about making sense of stories and narratives (Merriam, 2009).

An *instrumental case study* was appropriate for this investigation. Creswell (2008) described an instrumental case study "as one that has a focus on a specific issue, with a case used to illustrate the issue" (p. 476). Glesne (2011) stated, "Instrumental case study refers to studying a particular case to provide insight into an issue or to redraw a generalization" (p. 22). Yin (2011) stated, "You can assert that your case study not only presents a particular situation, but it is intended to inform other situation or cases, and Stake (1995) called these instrumental case studies" (p. 18). Case study research involves discovering meaning and investigating a process, and it may be necessary to gain an in-depth understanding of the participants or situation (Lodico, Spaulding & Voegtle, 2010). I executed an in-depth examination to understand the reasons why the medical students could not apply medical terminology regarding patient care.

Luck, Jackson, and Usher (2006) argued that "case study is a bridge across the paradigms" (p. 103). Luck et al. (2006) continued,

> When used as a research approach, case study is both the process and end product of research. It provides a delineated boundary for inquiry, and a structural process within which any methods appropriate to investigating a research area can be applied. (p. 103)

Others have contended that case study is not reliable and lacks rigor. Noor (2008) noted that some have criticized case studies as lacking scientific rigor and reliability. However, case study enables a researcher to gain a holistic view of a certain phenomenon or series of events and provides a well-rounded representation, as many sources of evidence are used.

Critical inquiry uses critique and challenge to transform and empower (Merriam, 2009). In this study, it was important to critique the faculty during the mentoring process and challenge them to make the language of medicine come alive for the students. Faculty mentoring can transform faculty into facilitators of learning. As facilitators of learning, the faculty can allow students to use critical thinking skills to apply the medical terminology to real-life patient scenarios. Medical students need the ability to identify problems in the medical setting and, using critical thinking skills, make decisions regarding patient care.

Lodico, Spaulding, and Voegtle (2010) explained that case study researchers first identify the problem to be investigated and then develop a rationale for why a case study is an appropriate approach. The issue at the Northern California college was as an urgent one; the medical students were unprepared to work in the health care industry. When they completed their coursework and then entered into internship in the medical arena, they either did not use medical terminology or they used medical terminology inappropriately in doctors' offices. It was important to investigate what types of activities can emerge to improve student-learning outcomes in the classroom for students in this program.

Participants

The selected population for the sample was four full-time medical terminology instructors at the Northern California college who were on campus at least 4 days a week. Full-time status and teaching medical terminology were the criteria for participation in the study. This research was about interviewing and observing medical instructors, but above all improving the understanding of medical terminology is the purpose. "The qualitative sampling is purposeful sampling, which means researchers intentionally select

individuals and sites to learn or understand a central phenomenon" (Creswell, 2008, p. 214).

Lodico, Spaulding, and Voegtle (2010) explained that the sampling procedure, in a qualitative approach, is purposeful sampling where the participants represent the norm. The instructors in this study represent the norm in that they teach medical terminology on a regular basis, and it is important to understand their process in the classroom. Purposeful or theoretical sampling in qualitative research, also defined as "criterion-based selection" (LeCompte & Preissle, 1993, p. 69), involves the deliberate selection of participants, settings, events, or units, not for their representativeness, but for their relevance to the research questions (McReynolds & Koch, 2009, p. 197). At the Northern California college, the instructors were selected that represent the norm for medical terminology instructors, in that they all have the same amount of years experience in teaching and all have a medical background. Since I knew and have worked with these faculty members as a colleague in the medical program, I sent each one an email asking if they would participate in the study; and then followed up with a face-to-face meeting. Once approved by the IRB (IRB Approval # 11-30-12-0159416) and the university authorities to conduct research, I gave each participant a consent form (see Appendix D) with an explanation of the study.

Since the medical terminology faculty is full-time, it was easy to conduct interviews and classroom observations. There are four full-time faculty members teaching this class on a regular basis. It is typical in qualitative approach to study a few individuals for an in-depth picture. More participants diminish the image (Creswell, 2008). Gomm, Hammersley and Foster (2000) and Yin (2004) stated (as cited in Van

Wynsberghe and Khan, 2007) “The case study calls for an intensive and in-depth focus on the specific unit of analysis and generally requires a much smaller sample size than survey research” (p. 83). In this study, at the Northern California college, it is important to only use a few instructors that teach medical terminology on a regular basis. If the entire medical faculty were in the research, the results would have no significance. It is about the students learning medical terminology. ResVanWynsberghe and Khan (2007) proceeded to explain “efforts to perform broad analyses with large numbers of participants can reduce the effectiveness of case study as it might come at the expense of detailed description” (p. 83). I will interview and observe each participant for a significant understanding of the classroom procedures. For a better in-depth understanding of the participants, the researcher will spend more time with each participant. (McReynolds & Koch, 2009).

The instructors are full-time employees, so it was easy to schedule interviews and conduct classroom observations. I have worked with these instructors on other projects at the campus, so accessibility was not a problem. Merriam (2009) stated the word ‘participant’ is an identifier, with connotations of inclusion and willing cooperation (p. 162). These particular instructors have always been willing to improve techniques and learn new approaches to a delivery system in the classroom.

To prevent any bias, the study included member checks and a peer debriefing to examine field notes and consider perspectives. Lodico et al. (2010) stated “to ensure that the researcher’s own biases do not influence how the perspectives are portrayed, many researchers use member checks in which transcribed interviews are sent to the participants for review” (p. 274). A peer debriefer not related to the study examined the

field notes. A peer debriefer is a colleague who examines the field notes and meets with the researcher on a regular basis to help examine assumptions (Lodico et al., 2010).

It was necessary to protect the participants in this study. I was careful to implement ethical guidelines to guard the anonymity of the participants. "In any qualitative study, ethical issues related to protection of the participants are of concern" (Merriam, 2009, p. 161). Merriam (2009) notes that both readers and authors of case studies need to be aware of biases that can affect and influence the final product. Ethics is a consideration from the beginning until the end of the research process. Glesne (2011) stated, "Ethical considerations are inseparable from your everyday interactions with research participants and with your data" (p. 162). At no time during the process should the participants feel like they are in harm's way. Protection from harm, to include physical and emotional harm, is one of the most basic of ethical concerns (Lodico et al., 2010). In qualitative research, the researcher does not impose a treatment; therefore, the researcher does not have to worry about placing a participant in a harmful situation (Lodico et al., 2010). The findings in each observation and interview were confidential and noted in a journal for data collection, with no names of participants disclosed. Glesne (2011) asserted, "Participants have a right to expect that when they give you permission to observe and interview, you will protect their confidences and preserve their anonymity" (p. 172).

Participants' Rights

Before conducting any observations and interviews, the faculty members signed consent forms (Appendix D) to participate in the study. Each participant kept a copy of the signed consent form and the researcher kept the original signed copy in a locked safe.

Through informed consent, I informed potential study participants ” (1) that participation was voluntary, (2) of any aspects of the research that might have affected their well-being, and (3) that they were free to choose to stop participation at any point in the study” (Glesne, 2011, p. 166). The researcher preserved and respected the participants' anonymity during the process of obtaining informed consents. The researcher is keeping each participant's interviews and observations confidential, even from other participants. “Assuring confidentiality about participants' identities, including those appearing in computer records and audio and videotapes is part of the guidelines from the National Research Council (2003)” (Yin, 2011, p. 46). Creswell (2010) reported that researchers needed to protect the anonymity of the participants by assigning numbers or aliases for use in the process of analyzing and reporting data.

All written documents from outside sources, interviews, observation notes, and consent forms are in a locked cabinet. I did not use the names of the participants in the final project, and I will keep any identifiable information in a locked safe. Each participant has a colored code as an identifier. This action will protect identities if there were to be a breach such as lost notes. The computer that houses the confidential information is password protected so all-confidential information will be inaccessible. All information is password protected until the project is completed and I will shred all information after a five-year period to insure privacy for all participants.

Data Collection and Analysis

The overall guiding research questions and the interview questions guided the researcher through the data collection process. The researcher used a journal to record individual observations and interviews. As themes emerged throughout the interviews,

they were easily noted, as the journal reflected all feedback and conversations. Creswell (2008) emphasized, "Collecting data as meaning to identify and select individuals for a study, obtaining their permission to study them, and gathering information through asking people questions or observing behaviors" (p. 10). I conducted the observations and interviews over a two-month period.

At the beginning of the quarter, the researcher presented an in-service to the medical instructors and demonstrated activities to use in the classroom. At the in-service, the researcher divided the instructors into teams and gave each team different scenarios with active learning options to practice and then discuss with their teammates. Each team discussed the best way to utilize each active learning option. It is important to use these active learning options in the classrooms throughout the quarter to see if each instructor engages the students and if they use critical thinking to solve problems while making sound decisions.

Throughout the quarter, classroom observation and interviews with each instructor was ongoing to discuss the instructors' and the students' reaction to a facilitative approach utilizing active learning projects. The researcher utilized the conference room at the campus to conduct interviews.

The interview is a crucial element of data collection. "Asking good questions is key to getting meaningful data and is often the major source of the qualitative data needed for understanding the phenomenon under study" (Merriam, 2009, p.114). The interview questions explored the activities in the medical terminology classrooms. Do the students understand the curriculum? Do they understand and know how to apply medical terminology correctly? How will each participant deliver the daily material? The

interview questions (see Appendix C) and probes helped to gain better understanding of classroom activities.

Questions for One-on-One Interviews

1. In an effort to meet the mission of preparing students for academic success and understanding medical terminology, do you think employing active learning projects in your classroom affects the students' understanding of medical terminology?
2. What types of activities could the students participate in to increase their knowledge and application of medical terminology?
3. How were the students able to make medical terms applicable to patient care?
4. Were you able to implement an activity to ensure the students' ability to understand the implications of medical terms as each applied to a specific patient case?
5. How did your daily activities link to the lesson plan?

Probes

1. What did you discover by using active learning projects?
2. How were you able to discern if they had increased their ability to apply the terminology?
3. What critical thinking skills do students need to apply medical terminology?
4. Did your lesson plan assist the students to have a better understanding of terminology? (See Appendix C.)

. As a result of the interview process, the answers to the interview questions assisted in understanding why there is a gap between students learning medical

terminology theory and practicing skills for each medical term. “The interview might be the major data collection tool of the study or may will be used to corroborate or verify observations” (Lodico, Spaulding, and Voegtle, 2010, p. 121).

Interview

The research included note taking and tape recording, when conducting semi-structured interviews with the faculty members. “In a semi-structured interview the researchers usually prepare a list of the questions to be asked but allow themselves opportunity to probe beyond the protocol” (Lodico, Spaulding & Voegtle, 2010, p. 124). “There are issues to be explored, and there is no determined wording” (Merriam, 2009, p. 89). I had a responsibility to collect and use data to reveal the issue or phenomenon at the campus level. I accomplished this by asking strong questions.

I conducted the initial interview to consult with the faculty member and asked questions (Appendix C) regarding classroom activity. This study, at the Northern California college, centered on teaching styles of instructors in the medical terminology classrooms. I addressed the students’ inability to use medical terminology correctly during this initial interview so the participants were aware of the problem in the community. The initial interview was before the observation period, and each interview lasted between 45 minutes to an hour in length. After the classroom observations were complete, I conducted another interview. In this interview, I asked the participants to reflect on their classes and utilized the probing questions for a more in-depth response. I used hand-written notes and a tape recorder during the interview process. I was adept during the process of interviewing and observing participants.

Glesne (2011) believed there are certain attributes of each interviewer. “The interviewer should be anticipatory, a learner, analytic, patiently probing, non-threatening, aware of power, caring, and grateful”(pp. 121-127). He explained that each of these qualities does not ensure high-quality interviews, but one should consider each in mastering the art of interviewing (Glesne, 2011). In all forms of qualitative research, occasionally all of the data are collected through interviews (Merriam, 2009)

When conducting the interviews, it is important to keep an open mind and be a good listener. The art of listening includes using critical thinking skills to abstain from being biased and opinionated during the interviews. Merriam (2009) believed the interviewer-respondent interaction is a complex phenomenon so the researcher takes a nonjudgmental, respectful and sensitive stance. Both parties can bring biases, predispositions, attitudes, and physical characteristics that affect the interaction and the data elicited

Observation

The classroom observation form (see Appendix F) covers a large array of opportunities for improvement and best practice. “Observation is the process of gathering open-ended, firsthand information by observing people and places at a research site” (Creswell, 2008, p. 221). Observation in this study was crucial. Goetz and LeCompte (1984) (as cited in Lodico, et al., 2010) stated “observation should include: (a) an explanation of physical setting, (b) a description of participants, (c) individual and group activities and group interactions, (d) conversation and nonverbal communication, and (e) researcher behavior” (p. 118).

In classroom observations, after the initial interview, it was imperative to observe expressions, body language, as well as listen to the questions the students or the instructors might ask. Glesne (2011) explained that the role of the observer is one of watching, listening and making notes of interactions and watching nonverbal communications. Glesne (2011) continued: "Another category of observation is people's gestures—their postures, positions, and movement. Do they show boredom or enthusiasm? Watch what gestures jump out at you" (p. 70).

Each class at the Northern California college is a 4-hour block. I observed each instructor for a 2-hour period, two different times each week, during a 2-month period. I gave each participant a schedule for the observations times for the quarter (Appendix G). "The purpose of the observation is to take field notes on the behavior and activities of individuals at the research site" (Creswell, 2009, p. 181). As I observed the instructors in the classroom, it was important to note the language of the students and the instructor, the facilitation techniques, interaction between teacher to students and students to students, nonverbal communication in the classroom, and equipment or techniques used to engage students. In this observation, the research included observing, reporting, and leaving opinion and bias aside. "Researchers who choose to use observation must conduct their observations in a way that results in accurate, unbiased, and richly detailed information" (Lodico, Spaulding, & Voegtle, 2010, p. 117).

Documents

Based on previous conversations with doctors and office managers, over a period of six months, the students entering internship have not been able to spell certain medical terms and use medical terminology in context. Each supervising nurse for the students

completed a student evaluation, and I used the evaluation information to document gaps in practice at the doctors' offices. Moreover, the students have difficulty using critical thinking skills and decision-making techniques regarding the use of medical terminology as it applies to patient care. Several medical facilities use interns on a regular basis; so I spoke to the office managers and the supervising medical staff to gain insight into the students' abilities to use proper medical terminology, ability to critically think, and apply learned information.

Results

Merriam (2009) determined, "The most preferred way to analyze date in a qualitative study is to conduct it simultaneously with data collection" (p. 172). Data analysis is important to understand exactly what data are obtained and how it will be used.

> We use the term "analytic lens" to refer to the methodological and interpretive presuppositions that a researcher brings to bear on his or her data. While theoretical positioning was about the researcher and his or her motives for pursuing a particular area of inquiry, the analytic lens is about how the researcher engages with his or her data. (Caelli, Ray, & Mill, 2008, p. 17)

The analysis is about finding meaning in the work and then clearly defining how to use the information gathered in the process. Yin (2011) stated, "The phases of interpreting and concluding challenge you to put your findings into order, to create the right words and concepts, and to tell the world the significance of your research" (p. 205).

I collected all data for analysis and then recorded it utilizing Microsoft applications and Atlas software for coding and highlighting. The researcher documented

current information into an the Atlas software assigning color codes for emerging themes and highlighting information from each participant, while gathering the information from interviews and taking notes from observational settings. Yin (2011) believed coding is an individual decision, so it is vital to make meaning from the gathered information.

Coding information is an integral part of qualitative data analysis. Glesne (2011) best described coding as a progressive process of sorting and defining those scraps of collected data (i.e., observation notes, interview transcripts, memos, documents, and notes from relevant literature) applicable to your research purpose.

I assigned each instructor a color code to provide anonymity and to transcribe observation notes and interview information; then read each of the transcripts and highlight themes as they begin to emerge in the data collected. “Themes are major, recurring issues, or concepts researchers use to summarize interpretations of data" (Lodico et al., 2010, p. 28).

Once the data was gathered, it confirmed findings in the documentation. I had an ethical obligation to debrief participants and share results with those examined. There are other strategies to confirm case study findings:

> Review of the report by fellow case study researchers who are familiar with the goals and procedures of case study research;
>
> Solicit scrutiny of the final report from experts on the topic under investigation;
>
> Researchers’ articulation of personal biases brought to the situation and how he or she attempted to mitigate the potential effects of those biases;
>
> Demonstrate how findings are based on information acquired from multiple sources, sometimes called triangulation. (Hancock & Algozine, 2006, p. 66)

It is important for any researcher to become very familiar with notes from interviews and observations made during the research process. The researcher analyzes by coding the transcripts from the interviews, notices any reoccurring comments, themes, and ideas mentioned by the participants. The researcher describes codes as setting, context, and perspectives of participants, processes, activities, strategies, and interpersonal communication in the classroom (Creswell, 2008).

As a case study strategy, Hancock and Algozine (2006) reported that researchers' articulation of personal biases be brought to the situation, with a colleague, and show how he or she attempted to mitigate the potential effects of those biases. Other colleagues are also using the case study approach as a doctoral project and I spoke with them for feedback on any issue that might arise from personal bias. While interviewing the participants, I took notes, observed the participants' body language, and then made notes of any bias that materialized from feelings. It is important to note these biases so the researcher might not inadvertently express them in the analysis.

I triangulated the information by using information gathered from the interviews, observation, and this documentation from doctors and nurses in the medical offices. Lodico, Spaulding and Voegtle (2010) wrote data collection in qualitative research includes observation, interviews, and document analysis and then compared in a process called triangulation.

Section II: The Methodology (Final)

The president of the campus provided a letter of cooperation (Appendix E) granting permission to conduct interviews and observations with the participants, four medical instructors. During the interview, I asked questions and logged the responses;

and used the probes to clarify the meaning of the responses. I recorded the data in this ongoing process. I used the five questions and four probes to understand how each participant viewed the student learning in the classroom. I conducted the initial interview in the conference room at the Northern California college with each participant. After the second observation period, I asked the participants the probing questions to analyze the information. I then wrote answers to the questions in a journal as the participants were thinking about and answering questions.

This case study was an intense look at the classrooms of each participant, and it was an opportunity to view the classes from a holistic perspective. "Case study analysis is an intensive, holistic description and analysis of a single, bounded unit" (Merriam, 2009, p. 203). In this case at the Northern California college, the bounded unit is the four medical terminology instructors. I asked the interview questions to understand and investigate the purpose of this study. The intent of this study is to investigate the gap between the current methods of lecturing and active learning projects engaging students in learning medical terminology, teach critical thinking skills, and develop decision-making techniques. As the interviews began, it was apparent there were some commonalities among the participants.

Interview

Interview Question 1

In an effort to meet the mission of preparing students for academic success and understanding medical terminology, how do you think employing active learning projects in your classroom affects the students' understanding of medical terminology? This question was an attempt to understand how each participant viewed the mission of the

College with their activity in the classroom. Each participant agreed that it might be important to use active learning in the classroom. More importantly, they all agreed that it was important that the students understand medical terminology.

Interview Probe 1

What did you discover by using active learning projects? All of the participants felt that active learning may be good practice. They felt as if they were doing active learning projects but did not think that retention of the material was apparent with the students.

Interview Question 2

What types of activities could the students participate in to increase their knowledge and application of medical terminology? The purpose of this question was to find out what the participants could do to increase awareness and application of the medical terminology. Two of the participants have had success with debates, role playing, having spelling bees, and playing Jeopardy. One participant wanted to have a 15-20 minute group activity during a four-hour class, and the final participant felt lecture was the best way to teach.

Interview Question 3

To what extent were the students able to make medical terms applicable to patient care? This question gets to heart of learning and making learning applicable. None of the participants felt that students knew how to apply medical terminology to patient care. When the researcher followed up with the probing question regarding applicability, no participants believed they were able to achieve this objective.

Interview Probe 2

How were you able to discern if they had increased their ability to apply medical terminology? Each participant decided that if students could say the word and not use the dictionary to find the meaning, then they had increased their ability to apply medical terminology; but all participants were unsure that true applicability was apparent.

Interview Question 4

How were you able to implement an activity to ensure the students' ability to understand the implications of medical terms as each applied to a specific patient case? I wanted each participant to identify an activity that would help the student understand the medical terminology and the applicability of it. Two participants believed small group was the best way to accomplish this. The participants would break the students into groups, give them a subject to research, and the group would have one member report back to the class. The two other participants either had the students working alone or were giving a lecture.

Interview Probe 3

What critical thinking skills do students need to apply medical terminology? One participant stated the students needed to know how to study. Another stated students needed to think out of the box. The other two participants stated life-long learning was a critical thinking skill.

Interview Question 5

How did your daily activities link to the lesson plan? The researcher wanted the participants to reflect on Student Learning Outcomes (SLO) for their class and then

decide if what they did in class, linked to the SLO for that class session. The participants felt like everything they did in class linked to the lesson plan.

Interview Probe 4

How did you lesson plan assist the students to have a better understanding of medical terminology? Participants stated because they used terminology in class; the students understood the meaning of the terminology.

Final Probe

The researcher asked one final probing question that was very revealing as to the participants' view of active learning.

What did you discover by using active learning projects?

Even though they did not think that the students retained the information, nor could they apply medical terminology to real-life scenarios, the participants felt active learning might be useful. Each participant wanted to know the results from the interviews and was very interested in the results.

Observation

I observed each participant two times for a two-hour interval; over a two-month period. Each participant modeled professional behavior in all instances as they interacted with the students in a friendly manner. They all wrote the agenda on the board and were able to meet the objectives of the class period. Two of the participants gave a group of four students a topic to research and then one person delivered the findings to the class. One participant allowed the students to work on his or her own, and the last participant used lecture exclusively. All of the participants asked effective questions throughout the observed period, and then asked for clarification if students were unsure of their answers.

None of the participants addressed any diverse learning styles; furthermore, none planned any active learning activities. Each participant did not challenge the students with problem-solving activities and each assigned group-work as a reporting exercise. After the observation period, each participant showed interest in the results of each observation. We talked about each item observed in the classroom. They were open to any suggestions and were appreciative of the time spent together.

Findings

Because of the interviews and the observations, I found three common themes among the participants. The first theme that presented itself was complacency. The researcher confirmed this by asking Probe # 4. The probe asked, "How did your lesson plan assist the student to have a better understanding of the terminology"? Each participant felt very self-satisfied to have a class session that included and utilized terminology. They explained that because the participants had terminology in their lesson plan, the students should have an understanding of medical terminology.

I discovered the second theme was application. All participants agreed that, in spite of their class sessions, students were still unable to apply medical terminology to real life scenarios regarding patient care. Participants used what they believed was active learning projects to assist students in applying medical terminology. After I had discussed the interviews and observations with the participants, each participant decided that the students still did not have the ability to apply their learning. The use of active learning projects are intended to assist students in learning to apply medical terminology to real-life scenarios in the doctors' offices and clinics.

Finally, the third common theme was a misunderstanding of the term critical thinking. Each participant had a different idea of what critical thinking meant. Tolutiene (2010) quoted Rimienė (2006) "Critical thinking is described as a purposeful, self-regulating process of decision making, which manifests itself while interpreting, analyzing, evaluating, making conclusions, grounding a decision on arguments" (p. 65). One participant felt if the students were thinking "outside the box", then they were critical thinkers. The other participants revealed that critical thinking involved getting certified and learning how to study would indicate critical thinking. A lack of knowledge of the term critical thinking implied the participants were in need of clarification and ongoing training.

Evidence of Quality

Evidence of quality in the study is necessary to assure confidence and congruence between the interviews, observations, and the office managers' reports. An important way to assure this quality is by utilizing member checking. I utilized member checks by sending the transcripts of interviews and observation results to the participants in the study. I answered any questions that they had in regard to the observations. It is vital to use this method to insure there is no bias in the research.

Another strategy is to use a peer-debriefer. "This colleague examines the field notes and meets with the researcher on a regular basis, asking questions to help him or her reexamine assumptions and consider alternatives ways of looking at the data" (Lodico, Spaulding, & Voegtle, 2010, p. 274). I asked two colleagues to read my research to insure there was no bias involved in the findings and the analysis.

The triangulation between the interviews, observations, and conversations with the doctors' office managers was helpful in understanding the themes that did emerge from the findings.

Summary

In conclusion, these findings demonstrated a need for ongoing professional development at the Northern California college. The students will benefit from this training because instructors trained in active learning facilitation will enhance classroom learning. The doctors' offices will benefit in the future because the students learn decision-making skills and will be able to think critically when giving patient care.

Section 3: The Project

This project was determined from the findings in Section 2. The purpose of this project is to teach active learning activities to faculty members in an effort to improve retention and application of medical terminology for medical assisting students. Students leave the classroom and enter internships with little retention of the meaning of certain medical terminology symbols and the usage and application of medical terminology. This professional development series will give the faculty members activities to help their students retain what they have learned, apply what they learn to real-life scenarios, and teach the faculty members to add problem-based learning into their daily lesson plans.

Problem-based learning activities will help the students develop critical thinking skill, which is an attribute needed in medical offices. If the faculty members can learn and embrace the ideas and concepts of active learning in the classroom, this will make a difference in the doctors' offices and clinics, because interns from the program will know how to apply what they have learned and think critically when it comes to patient care.

This project is a professional development workshop consisting of two 8-hour sessions. Each lesson will incorporate activities so that the faculty members can increase the students' learning and will teach them to use a facilitative approach in the classroom. Instead of the teacher lecturing to the class for a 4-hour period, the students will be engaged in activities in which they make meaning out of the material presented by the instructor.

Goals

The goal of this project is to increase the instructors' ability to create a learner-centered environment in the classroom. This project design is intended to assist the

medical instructors, but if the program is successful, other instructors at the college may participate as well.

Rationale for Professional Development

I chose this project because the students need a solid foundation in the classroom so that they can be effective health care providers as they go into doctors' offices and clinics during internship and beyond. In order for the students to have this foundation, the medical faculty members at the Northern California college need ongoing professional development concerning the form of active learning projects, the importance of critical thinking, and the implementation of problem-based learning. Mclean, Cilliers, and Van Wyk (2008) stated, "Developing a cadre of professional and competent teachers, educators, researchers, and leaders for their new roles and responsibilities in medical education requires faculty development" (p. 555). Ultimately, it will be important to teach not only the medical faculty, but also faculty in the other disciplines at the Northern California college, who may also benefit from this faculty development.

Professional development is important because there are times when faculty members seem to be lost in the system. Many times, the campus provides professional development for managers and administrators, but the faculty is not included. Flawed thinking on the part of administration leads to the assumption that if faculty members are good at what they do, then they will be able to teach. Light, Calkins, Luna, and Drane (2009) quoted Kember and Kwan (2000) as stating, "A learner-centered conception of teaching is required in order before any real change toward quality teaching and learning can occur" (p. 169). Providing the faculty with ongoing professional development will increase the morale of the faculty, and the students will benefit in the long term. Faculty

members need to constantly improve their teaching skills and look for ways to enhance learning in the classroom.

According to the research in Section 2, the participants at the Northern California college did not have a good understanding of active learning projects in the classroom. Although three of the four participants used small groups as a means of breaking up lecture time, this approach proved to be ineffective; the participants admitted that the students were not able to retain and apply the medical terminology from week to week. They all agreed that active learning might be useful, but none of them saw its benefit. They were upset about the students' inability to apply medical terminology to real-life scenarios. Cavanaugh (2011) cited Herrington and Herrington (2006) as stating,

> The benefits of active learning in lectures are maximized when tasks are authentic and reflect how knowledge is used in real life, when students have opportunities to adopt multiple roles and consider different perspectives, and where students are required to articulate their thinking and reflect on the ideas of others. (p. 24)

Faculty development in the form of ongoing training in the use of active learning projects will give the faculty the ability to use different activities to enhance learning.

In addition to the lack of activity in the classroom, all the participants in the research had different ideas about critical thinking. The participants defined *critical thinking* as certification in one's field, learning how to study, and thinking out of the box. This training will teach the aspects of critical thinking, show the faculty members how to employ problem-based learning to help the students in applying medical terminology, and demonstrate how to increase critical-thinking skills. Medical assistants will be caring for patients, and like all caregivers, they need the ability to think critically that comes from

various learning activities. “Nurse educators strive to promote learners’ critical thinking skills, learning, and confidence through various teaching approaches because they cannot prepare nurses for every situation that they may encounter in clinical practice” (Kaddoura, 2010, p. 506).

This project is a professional development program that focuses on the instructors. They need to learn active learning techniques, and they will learn how to engage their students in problem-based learning. “Faculty development is critical to the individual and collective success of medical faculty” (Trowbridge & Bates, 2008. p. 10). If this project is successful, the medical terminology classrooms at the Northern California college will move from teacher-centered environments to learner-centered environments. The need for active learning using many methods is ongoing at many levels in the medical community. Kaddoura (2011) contended that in today's fast-paced, technologically advanced world, the challenge for nursing faculty is to teach students critical thinking skills and to help students develop the ability to practice competently in a variety of situations.

Rationale: How the Problem Is Addressed

This project is for the medical instructors at the college. Each faculty member plays a huge role in the retention of students and their ability to learn, comprehend, and apply the needed information to be successful in their internships and later as they graduate and become employed. The faculty members know the students and have a large influence on each student because they see the students two or three times a week. The success of the school depends on the success of each student, and as the instructors

engage the students, they will impact their success. This professional development program will help to generate ideas to keep the students involved in learning.

This program will help the instructors to understand the importance of a learner-centered classroom. Akerlind (2007) argued that a combined focus on the teacher, teaching strategies, and transmission of information is a 'eacher-centered' approach. A focus on students and their learning, development, and understanding is a 'student-centered' approach.

The need for this workshop has manifested because the students are leaving the Northern California college for internships and are not able to function in doctors' offices and clinics. Through active learning, these students will not only be able to retain the information from medical terminology classes, but also be able to apply the information to real-life scenarios regarding patient care. Nursing institutions have been investigating ways to improve nursing skills and equip students for clinical decision-making. Kaddoura's study in the United Arab Emirates, examined critical thinking vs. didactic teaching. They found a that case based learning improved critical thinking skills and prepared nursing students for clinical practice. Kaddoura (2011) stated, "A strategic review of the didactic nursing program took place and led to a complete review of their nursing curriculum to integrate teaching and learning activities that develop students' critical thinking" (p. 2).

There is a good reason for active learning, and based on the results of the research done in Section 2, the medical instructors at the college are not engaging the students in the medical classroom. It is important to engage students and encourage them to be part of the learning process because they have to know what to do in a patient care scenario.

This will be accomplished by role-play, patient cases, games, debate, simulations, and much more. The learner-centered classroom is a classroom that is engaging and thought provoking and that includes critical thinking.

Central to the understanding of active learning is the philosophical shift to constructivism. People construct knowledge based on previously held beliefs and experiences. “This process is a dynamic interaction between the learner and the experience” (Mickelson, Kaplan, & MacNeily, 2009, p. 400). “Active-learning techniques such as small-group discussions or writing exercises can exist within the confines of a lecture format, which may also be enhanced by classroom debate, role-playing, or peer teaching” (Ross et al., 2007, p. 2).

Review of Literature

Professional Development

The Northern California college needs a professional development program for its faculty. Faculty members have been teaching for a number of years and ongoing professional development seminars and workshops are not part of faculty development. There is no structured faculty development program. There is a mentor program for new faculty, but it consists of a veteran faculty member teaching a new faculty member to take attendance, enter grades into the system and teaching them to do daily activities and tasks on the computer. There are no classes for new instructors, only a CD to view regarding policies. New instructors need to learn about policies, but more importantly, a session on classroom management would help immensely. The mentors need to teach new instructors need how to conduct a student-centered classroom. According to Bedgood et al. (2010) “Within the academic science teaching community, there is a

growing desire to shift from highly teacher-centered practice to modes of supporting learning that are more student-centered" (p. 10).

Teaching has been teacher-centered for years, but there is a new shift towards the learner-centered approach. Faculty need to learn this new approach because it enhances critical thought and decision-making skills. Active learning in the classroom is the best way to enhance this learner-centered approach. There is not only an American awareness for the learner-centered approach, but there is an international awareness. Schools in Europe and Australia are using and are focused on professional development and teacher training. Bedgood et al. (2010) quoted Johnson and Johnson (1989) "Why such international groups are pushing for changing to a more student-centered teaching method warrants questioning" (p. 11). Bedgood et al. stated, Johnson and Johnson (1989) reported a number of improved learning outcomes suggesting the following:

i. higher achievement and increased retention

ii. increase in higher-level reasoning, deeper-level understanding, and critical thinking

iii. increased time on task and less disruptive behavior

iv. greater achievement motivation and intrinsic motivation to learn

v. greater ability to view situations from others‟ perspectives and greater social support

vi. improve positive attitudes toward subject areas, learning, and school

vii. more positive self-esteem based on basic self-acceptance

viii. greater social competencies. (p. 11)

If ongoing professional development can support and enhance retention of students, then it is important to implement a program. Guskey and Yoon (2009) were involved in a study that found that the workshops that showed a positive relationship between professional development and student learning were those workshops "focused on the implementation of research-based instructional practices, involved active-learning experiences for participants, and provided teachers with opportunities to adapt the practices to their unique classroom situations" (p. 496).

Problem-Based Learning

There are many aspects to active learning. "The term active learning covers a wide variety of learning strategies aimed at encouraging active student participation in learning ('learning-by-doing')" (Scheyvens et al, 2008, p. 51). One of these learning strategies is problem-based learning. Students in the medical field will encounter many different patients and problems in a week and even a day. They must be prepared to understand the problem and be able to assist the doctor to help the patients return to wellness. Problem based learning in the classroom entails giving the student real life scenarios to read with medical terminology and find a solution that would fit with the theory of medicine and learned procedures.

In a problem-based environment, instructors give students a real-life clinical scenario and they must use their text to find solution to the clinical problems based on their level of expertise and their scope of practice. Spronken-Smith and Harland (2009) believed "Problem-based learning (PBL) encourages knowledge construction by starting each learning experience with a complex real-life problem that is typically presented to a small group of students in a tutorial setting" (p. 138). Faculty designs these scenarios for

each group of medical students. The use of teams is a good approach to problem-based scenarios. According to Ross et al. (2007), “the role of the faculty facilitator was to create an educational environment in which cooperative learning could occur. Facilitators were not to steer student discussions, but to stimulate thought by asking pertinent questions” (p. 5).

Problem-based learning (PBL) is giving a student a problem and based on their ability to think critically and used the text, they are able to solve the problem. The instructors can give the students a clinical case and have them solve the issue. It is a way to engage the student in his/her own learning. When a student can solve a problem, it gives them confidence needed to go into a doctor’s office or a clinic and take care of patient needs.

It is essential for medical assisting students to solve real-life situations before they go into their internships. Critical thinking and decision-making are integral to problem-based learning. “Problem based learning is a teaching/learning strategy through which students learn course content by solving real-world problems associated with the course material” (Reynolds & Hancock, 2010, p. 175). The medical assisting students at the Northern California college are not prepared to enter their internships fully equipped to take care of patients. They have some skills, but when it comes to critical thinking and working through problems, based on the research, they fall short of this goal. It is important that we, medical faculty, give them these real-world scenarios in the classroom, so they can work through these problems without endangering a patient. Reynolds & Hancock (2010) quoted Albanese & Mitchell (1993), “In that sense, PBL parallels the

views of Plato and Socrates who required students to think, ask questions, retrieve answers, and search for and debate new ideas in a scholarly environment" (p. 175).

This problem is not new one at this school, and it is important to change the learning environment to prepare future students for their clinical experience and their future jobs in the medical field. The textbook can give only so much information, it is up to the facilitator to take the students to the next level in their thinking. The instructor is still in the room to give mini-lectures and direct the student into a learning situation. The professors should encourage their student to become active participants in their learning (Reynolds & Hancock, 2010).

For years, the instructor conveyed the material to the students in the classroom with a lecture; and the students sat passively and took notes. Studies have shown that the teacher-centered classroom is no longer the mainstream approach. Schiller (2010) quoted Meece (2003), "In learner-centered teaching, students are no longer passive receivers of knowledge; instead, they are "active participants in learning and co-constructors of knowledge"(p. 369). The medical instructors at the Northern California college that participated in the research used an approach to the classroom that did not allow the students to use any problem-solving skills and the students were not encouraged to think critically. Problem based learning will enhance the students' ability only to not make meaning out of the material, but they will be able to apply it to patient care.

Learner-centered learning with a problem-based approach allows the students to share and makes decisions, whereas in a teacher-centered environment, the instructor uses and delivers the material and is in charge of the classroom. Learner centered learning gives the power of learning back to the students and enables them to make

decisions and share with the class in a collaborative manner. It is no longer enough for medical students to know, but they need to be able to apply their knowledge. A learner-centered approach to learning gives them the freedom to learn and explore the concepts and the medical terminology as they apply it to patient care scenarios. Problem based learning is a learner-centered approach to learning and this is active learning. The student engages and actively makes meaning out of the material presented in a real-life, clinical problem. Becker, Krodel, and Tucker, (2009) stated, "Many students become better learners if immersed in activities—particularly activities that interest them" (p. 88). Similarly, if students engage in learning experiences relevant and similar to those of a nurse or engineer they will learn to be better nurses or engineers.

Colleges and universities around the country have concerns regarding student retention. If a student is not engaged in the classroom, then they are more likely to drop the class and eventually their education. Many disciplines besides medicine are changing to a learner-centered approach in the classroom so the students will remain in class and finish their designated program in school. It ranges from information systems instructors, to math instructors trying to engage students in high school and college environments. "Some of the more prominent aspects of this style of instruction include group work, student projects, real data analysis, and written and oral presentations" (Schumacher & Kennedy, 2008, p. 102).

Implementation

Resources, Supports

The leaders of the workshop will be those instructors already trained in active learning projects. These instructors at the Northern California college have been very

successful, implementing problem-based learning into their students' daily activities. These faculty members do not belong to the medical faculty, but would be willing to conduct the workshops.

The president of the campus is very much in favor of faculty development. The president wants the medical faculty engaging the students and implementing problem-based activities. Many of the medical students at the Northern California college come from a background of poverty and each has a desire to do better than their families before them. The president understands the importance of engaging the students in active learning because of their background; many of the students are under-resourced college students. They need motivation and they need to learn new communication skills that will assist them in their internship and beyond. Active learning activities with a problem-based approach will motivate and empower them. Becker, Krodel, and Tucker (2009) stated,

> Therefore, situating under-resourced students in experiences that develop their language skills, their learning skills, their thinking skills, their problem solving skills, and their communication skills –as well as their motivation and internal locus of control (willingness to take responsibility of one's performance)—will benefit them both as students and eventual practitioners in their chose careers. (p. 88)

This project will not need any extra monetary resources. The full-time faculty members are on salary, so this would not be a case of working overtime and having to be paid. Classrooms are always available at the campus, and so setting up a workshop in one of these classrooms would be a simple process.

Barriers

Some barriers to the project may develop, but these would not be overwhelming in nature. The medical faculty members, especially the participants in the research, conduct their classroom in the traditional lecture modality. Even though the research showed they were discouraged about students' inability to retain medical terminology, they did feel that active learning would not make a difference. They are adamant that small group and lecture is the way to conduct a classroom.

Time spent on active learning in the classroom, on a daily basis, might be a barrier to the instructors. Almost any time a change in an organization or in process occurs, some dissention results. In another study, "these barriers include the attitudes and misconceptions of teachers; insufficient support from the institution and a lack of convincing research on the benefits of teaching improvement methods" (Steinert et al., 2009, p. 43). Instructors do have barriers to change in the classroom, but the students must be equipped for internship. Active learning, problem solving and decision-making skills are the answer. Michaels (2007) believes, "Understanding teachers' perceptions about the barriers to active learning in their classrooms is the first step in devising strategies for helping faculty change the way they teach" (p. 42).

Implementation Including Timetable

This professional development workshop will take place at the quarterly in-service that is set aside for the faculty. The academic year consists of 4 quarters, and these workshops will begin in a specific quarter. This will be an ongoing workshop for six months (two quarters). The program directors and the trainers will assess and discuss new strategies at the end of two quarters.

Roles and Responsibilities

The medical faculty will attend all of the workshops on active learning in the classroom. They must have a good understanding of active-learning, problem-based learning, and critical thinking. Through these workshops, trainers will discuss and facilitate three specific topics using active-learning, critical thinking and a problem-based learning approach. It will clearly define a student-centered approach to teaching. It is important to model and explain how and what they will be facilitating.

Project Evaluation Plan

It is important to utilize a quantitative project evaluation for this professional development program. The project staff will collect both formative and summative data. The faculty members will complete all sessions of the professional development, the formative data collection will be an ongoing process, and the professional development facilitators will collect summative data at the end. According to Lodico, Spalding and Voegtl (2010), data for summative evaluation and formative evaluation is different in that the summative measures the overall program and the researcher collects and reports formative data during the program. Program evaluation is an objective-based approach, as this is most common approach (Lodico et al., 2010). This outcome-based approach, using descriptive statistics can assess the progress from teacher to learner-centered facilitation in the classroom. Lodico et al (2010) states “descriptive statistics are one tool for summarizing this performance for both research purposes and, increasingly, for assessment of educational outcomes in the classroom school, and district levels” (p. 74). The project staff will assess and evaluate the Student Learning Outcomes (SLO) in this professional development program. The facilitators will evaluate the SLO (See Appendix

A) based on an instrument developed by Gary Conti, Principles of Adult Learning Scale (PALS) (See Appendix B). This PALS instrument measures classroom-teaching styles and has been used in many studies throughout the country. Dunst and Trivette (2009) conducted a study to show the effectiveness of the PALS approach in adult education:

> The approach, called PALS (Participatory Adult Learning Strategy), places major emphasis on both active learner involvement in all aspects of training opportunities and instructor/trainer-guided learner experiences. The use of PALS practices has been found to be associated with improved learner knowledge, use, and mastery of different types of intervention practices. (p. 164)

Conti (2004) states "Although a teacher-centered approach is widely practices in adult education, the learner-centered approach is strongly supported in the field's literature" (p. 78).

Goal of Project and Performance Measures

It is the goal of the professional development program to move the medical instructors from a teacher-centered classroom approach to a student-centered facilitation method. The PALS instrument will help identify those teaching approaches in the classroom.

Overall Evaluation Goals and Stakeholders

This professional development program for the medical faculty addresses the concerns regarding the lack of critical thinking in the classrooms, the students' inability to apply learned material to patient care, and it will address the lack of active learning in the medical terminology classes. Based on the research, this faculty development will enhance the faculty's ability to engage the medical students.

The program will affect all stakeholders. The stakeholders include the students, faculty, administration, the doctors in the community and most importantly, the patient as the end user. These students will be prepared to go into internship with a new outlook and confidence because of what they have learned in class utilizing active learning.

Implications for Social Change and Stakeholders

The professional development for medical faculty has a significant impact on the future of the students and the overall goals of the Northern California college. This continued education for the faculty will help position more qualified health care workers into the workforce. This will not only impact those doctors and clinics in the local area, but we have many students that move around and they will be able to transfer those skills to new jobs and positions around the country.

The medical students graduate and get jobs in the health care community and the social change will impact patients in years to come. The graduates or newly trained employees will have the critical thinking skills to care for patients, they will know and use the language of medicine in context, and they will be able to solve problems and have a creative thinking process. This new student outcome will impact the Northern California college and its mission statement will have new meaning. We, the College, will be preparing the students for professional and personal success.

Summary

This project describes the professional development for medical faculty members at the Northern California college. The program contains instructions and ideas on active learning in the classroom, critical thinking, student-centered approach, and problem-based learning. The faculty members will define each of these components, look at new

ideas to engage students and work in teams to design classroom activities to engage students. This professional development program will take place over a 2-quarter period of time or six months. Program directors and facilitators will evaluate at the end of each quarter.

Section 4: Reflections

The medical students are leaving the Northern California college, and as they enter their internships, they are not prepared to work in a doctor's office or clinic. They do not have decision-making skills, and they do not have the ability to think critically. The purpose of this project was to bridge the gap between the current methods of lecturing at the Northern California college and active learning projects.

Strengths

The strengths of this project are consistency and collaboration. The faculty members at the college have not had consistent professional development. This project, when implemented, will afford the faculty innovative insight into professional development. The results of my research have driven the project. The participants in the research did not understand active learning and critical thinking; they had no concept of problem-based learning; and a learner-centered classroom was not a consideration for them. This project will address all of these issues and provide ideas and an argument for a better classroom experience for the students. "Faculty Development Programmes (FDPs) are a means to expose the faculty in higher education to new theories, technologies and practices, and thereby to enhance their effectiveness" (Nandan & Nandan, 2012, p. 277).

All stakeholders will benefit from this professional development program for faculty. The school will produce stronger, better-prepared graduates, the faculty will be able to increase their knowledge and expertise in the art of teaching, and the students will know they are ready for the workplace. All facilitators should want to improve learning by enhancing the classroom experience. "An institution that strives to deliver education

of high quality fosters an effective level of learning and development" (Nandan & Nandan, 2012, p. 277).

Limitations

Apathy is the limitation in this project. This project relies on the cooperation of administration and faculty. Ongoing professional development can seem intrusive when it has not been part of life at the Northern California college. The faculty members need professional development, and most desire to learn new ways to engage students. A commitment to professional development has not been present in the past. Some faculty members have been teachers many years and consider themselves experts; therefore, their motivation to learn may seem diminished.

Another limitation is that active learning takes time. Many of the faculty members prefer lecture over active learning. They measure learning by exam results. A well-rounded program of active learning, problem-based learning, and critical thinking will take preparation and a lot of thought before each class. Michael (2007) conducted a study with twenty-nine instructors and found that barriers to instructors adopting active learning included apprehensiveness regarding not having enough time to cover all the material for the course, the results of course evaluations being weaker, colleagues criticizing them, loss of instructor control, and a general feeling that implementing active learning was just too hard. Although Michael's findings represent just one study, they raise significant concerns. The faculty members at the Northern California college have not had constant development regarding teaching techniques for adult learners. A new active learning model may be a limitation for faculty.

Recommendations

Professional development is important at any stage in a person's career. In order to address instructors not being prepared to teach early on, this professional development program should be a mandatory program for incoming faculty. All instructors need ongoing professional development to be successful in the classroom. "Faculty development is considered an essential component in the academic success of individual faculty members as well as that of the institution" (Guglielmo et al., 2011, p. 1).

Another recommendation is to hire faculty and survey them using Conti's Principles of Adult Learning Scale (Appendix B). As new instructors begin teaching, the directors would know their teaching style, and they would have a starting point for the mandatory training.

Scholarship

One of the synonyms for *scholarship* is *erudition*. *Erudition* can also mean *cultivation*, and that word describes my experience of project development. Each day, I cultivated more ideas, and I developed additional insight into the research process. This process has given me a different perspective. Another word for *erudition* is *enlightenment*. Project development has opened my eyes to a fresh part of education and research, and it has been very valuable and exciting to be involved in the research process. Research requires critical thinking including analysis, synthesis, and evaluation. During this process, this research project has provided me an opportunity to analyze the literature regarding active learning, to synthesize or construct learning, and to evaluate my own research.

Before beginning this study, I had thought about research, but looking back, I did not even have an idea of what this project study would entail. Research is a systematic approach to a real problem or an idea. In the case of the Northern California college, a significant need for faculty development is apparent. As I began to read about faculty development, I knew that many colleges have the same problems, but other colleges have begun to deal with the issues. The Northern California college has an excellent opportunity to begin developing faculty and help them to become premier practitioners at what they do. To be simply an authority in a field of experiential expertise is not enough. To be a teacher, one needs to know how to engage students in the classroom and how to facilitate the process to a new level of thinking. This research allowed me to understand different aspects of education.

Research is not about proof, but about an opportunity to learn and investigate. In my research, I was not trying to prove anything about the current faculty; I was more interested in understanding their approach to teaching and then providing them an opportunity to get better at what they do with a professional development program. However, the results of this research did prove some things, and now I have the opportunity to give back and help faculty to excel each day.

Choosing a topic to research has to be about selecting something that is near to the heart. I enjoy learning and consider myself a lifelong learner, but this research has taken me on an excursion through ideas and thoughts that are now real. Without passion about a subject, one finds frustration and boredom. Researchers around the world are learning about active learning in the classroom, and this research has given me an overpowering need to know more. Australian and Pakistani educators have the same

frustrations about the lack of engagement in the classroom that American educators experience. It is not just an American problem, or a Northern California problem; globally, students need to be engaged in the classroom with active learning. I have had an interest for years in providing techniques for classroom management and engagement in the classroom. This project study has provided me an opportunity to learn more and find a way to enhance learning at the Northern California college.

Project Development and Evaluation

Planning a project and designing a curriculum takes critical thinking skills and involves understanding the audience. This project will entail teaching faculty members how to engage students, so the facilitator of the project must be engaging. How can we encourage instructors to provide a problem-based approach to the classroom if we do not model this in the training? As I planned this project and the presentation, I had an opportunity to think through the steps of the training. Nandan and Nandan (2012) stated, "Learning may be seen as an essential component of high quality education. Ongoing learning is required in faculty members, so that they may in turn facilitate the development of critical thinking skills in their students" (p. 277).

Planning and design of a faculty development program should be systematic and have a purpose. One must design the learning objectives, and more importantly, consider meeting those learning objectives in a classroom situation with a group of faculty. A curriculum for faculty development can take many forms. It takes a meticulous thinking process that includes decision-making and analysis. Consideration for all stakeholders during the development stage is essential. Would the faculty value a professional development program? The answer to this question comes from an analytical thought

process. If the instructors do not change their belief about student learning outcomes, the status quo will remain where the students are not prepared for internships. Nandan and Nandan (2012) noted, “the aim is to change faculty beliefs about teaching and learning, rather than simply addressing teaching skills and strategies per se” (p. 279).

Any instructor should welcome critique with positive or negative feedback. During the process of development, I used my peer debriefing to look at the plan and critique.

Leadership and Change

I have always viewed myself as a leader and a change agent at work. With this in mind, I completed the research and became an expert with regard to active learning. I have practiced active learning in my classroom for years. Other researchers around the world are finding the same results. I know this project can change the culture of the medical faculty in the classroom. They will be able to change the lives of students they encounter.

If I had the chance to change anything, it would be having the ability to implement this project. Writing this project is part of the doctoral program, but if I were to do this, realistically, I would implement and move forward with training.

Scholar

Am I a scholar? This is a monumental question. When I started this project, I thought I knew a lot of information about active learning, critical thinking, and problem-based learning. However, now I realize I have just seen the surface of what is out in the educational community and what can be out there in the future.

I would like to call myself a scholar now. I read material about active learning and critical thinking and immersed myself in it. Becoming a scholar was not a comfortable journey, and during the process, I learned how to maneuver through the Walden Library. I was able to master the use of the different search engines. I employed the use of Google Scholar, which directed me to scholarly, peer-reviewed journals in the Walden database. Becoming a scholar is about the investigation and learning process. Writing is not always easy and learning to choose words very carefully will enhance the overall project.

Practitioner

I have always considered myself a practitioner faculty member. I worked in the field while I was teaching. When I taught management classes, I was a practitioner because I managed a team in the workplace. I have utilized active learning in the classroom for many years, not because of training, but because I realized I learn by doing and my students might have the same needs. This project has taught me not all faculty members understand the importance of challenging their students. They need to implement innovative ideas to keep the students engaged and assure learning.

Project Developer

A strong need is clearly apparent at the Northern California college for professional development of the medical faculty. It does not end there, but moves toward all the faculty members. Moreover, the mere recognition of this need is not enough. It must spur forward an effort to bring positive change. I have always created an exciting and practical method of teaching medical terminology, but developing curriculum for the faculty was a process that took a more in-depth approach.

I would like to see the faculty members appreciate the additional information they now have and develop a high regard for learning a new approach in classroom management. Although I am not in charge of the faculty, I am truly in touch with the students and they come to me for explanations that they should be getting in the classroom. If the faculty members would start using the approach taught in this project, because of the project, these students would have a clear understanding of medical terms.

Overall Reflection

This entire doctoral program has been such a rewarding experience. I have always wanted to be a doctor of education and now I am realizing my dream to the fullest. The online experience and the Walden education model is a premier learning experience. I have experienced the ideas and application of different learning theories, with the help of the faculty. I have also realized that working with my committee has taught me the value of teamwork. I could not have experienced a more valuable learning experience.

When starting this program, I believed the proposal and the project would not be a very big component of the entire degree process. As I moved closer to doing this study, the research, and the project, I realized why some people spend years on one research project. The work in this project is valuable to faculty members and students alike. The faculty members will learn how to add new and exciting events to daily classroom activities, and the students will reap the benefits of these activities. As I have read more and more about active learning, problem-based learning, and student-centered classrooms, I have been motivated to continue with this idea and use it in my online classes.

There were many times in this journey where I was tired, or very ill. In addition, my mother passed away, but I persevered and was able to keep my focus. I have developed one very special friend that started this process with me and we have seen each other through this entire process. My classroom experience and the encouragement from fellow classmates and my instructors have been exemplary.

Implications, Applications and Future Research

I have learned many applications and implications for future research. The Northern California college has not yet implemented this professional development program, but upon implementation, it will change the culture of the medical department. All faculty members can utilize this program.

The original problem occurred when the medical students were not able to apply medical terminology in the doctor's offices. As the faculty implements active learning in each class, the students will be more prepared to go into the doctors' offices and clinics and give skilled and compassionate medical care. The school will benefit from the students being able to perform. The doctors will benefit because they have a competent, professional staff to work in the office. Moreover, the end user of this knowledge is the patient. The patients will benefit because the medical professional has the skills to provide excellent care.

Summary

I am very passionate about the need to have skilled medical care providers in the medical community. The Northern California college has an excellent opportunity to use this professional development program. It can begin with the medical faculty but utilize it for all current and incoming faculty members.

The goal has been to prepare the student for academic and professional success. Professional development provides faculty members with the concepts needed to engage the students, apply critical thinking through problem-based learning, and keep the classroom student-centered.

I have learned through this process that I have the ability to be a change agent at my place of employment and other schools. It is extremely important to teach all college students how to think critically. The hope is that medical students would bring social change by graduating with the ability to use medical terminology in context, think critically, and provide satisfactory patient care.

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Appendix A: Professional Development Program

Introduction

This professional development workshop will take place on campus and will assist the faculty in their ability to learn a new approach in the classroom. Each faculty member plays a huge role in the retention of students and their ability to learn, comprehend, and apply the needed information to be successful in their internship and later as they graduate, become employed. The success of the school depends on the success of each student and as the instructors engage the students, it will impact their success.

Purpose

Professional development will assist the instructors in generating ideas to keep the students involved in learning. By utilizing active learning facilitation techniques, teaching critical thinking and decision-making skills, and utilizing a learner-centered approach in the classroom, instructors will be able to change the approach from a teacher-centered to a student-centered classroom. In addition to teaching decision-making skills, the instructors will learn how to implement problem-based learning.

Target Audience

Medical instructors at the Northern California college are initially the intended audience. As the college implements this ongoing professional development program, the entire faculty at the college will be able to benefit from the training.

Learning Outcomes

By the end of the course, all participants should be able to:

Define Active Learning

Define Critical Thinking

Define Learner-Centered Classroom

Identify activities for a Learner-Centered approach in the classroom

Define Problem-Based Learning

Describe ways they will implement Problem-Based Learning

Describe ways they will improve and change their approach

Agenda for Training Day I

9:00 – 10:00	Introductions and Welcome
	Announce Student Learning Outcomes
	Warm-Up Activity
	Active Learning
	Designing Active Learning activities
	Interactive Exercise
10:00- 10:15	Break
10:15- 12:00	Reflections on Exercise
	Active Learning
	Implementing into the daily activities
	Exercise and Reflection
12:00- 1:00	Lunches
1:00- 2:00	Critical Thinking
	Recognizing Critical Thinkers
	Interactive Exercise
2:00-2:15	Break
2:15-4:00	Reflection on Exercise
	Critical Thinking
	Characteristics Critical Thinkers
	Interactive Exercise with Reflection
4:00	Conclusion
	Handout for Warm-Up Introduction Activities

Facilitators utilize warm up activities or Icebreakers to relax your audience. This is an exceptional way to get a new class started. Students may not know each other and this will help them to relax and get to know others. Some icebreakers work better if there are groups.
Example:

Marooned

Clark (2004) developed an activity to demonstrate leadership:

> You are marooned on an island. What five (you can use a different number, such as seven, depending upon the size of each team) items would you have brought with you if you knew there was a chance that you might be stranded. Note that they are only allowed five items per team, not per person. You can have them write their items on a flip chart and discuss and defend their choices with the whole group. This activity helps them to learn about other's values and problem solving styles and promotes teamwork .

LOGOS

Another activity that you can use in the classroom as an icebreaker would be Logos. I have given you the website below. It can be found in the ideazone.com.

> Each person is given a blank name tag. Explain to the group that corporations are recognized by a specific logo or symbol. (McDonalds arches, 3M, Apple Computer's Apple, etc.) They are given 2 minutes to draw their personal logo. This logo should reflect their personality, their interests, major or any thing they would like other people to know about them. Then give the group time to mingle and see what each others logo looks like. When it looks like the entire group has mixed, instruct everybody with a similar logo to form a small group. You may be surprised at how many similarities there are in your group.

Color Jacuzzi:

This is an icebreaker to get the class talking and motivated to talk to each other. It is found at ideazone.com. This can be found online. The website is below.

The object of this small group exercise is to get the group to quickly meet the other members. The facilitator calls out a color of the rainbow: - for example RED:

Red typically is the stop/turn- off color - so each member of the group quickly tells what is the one thing (that they can disclose in public) that is really a turn off to them .

Orange: is the motivation color - what motivates them

Yellow: is the inspiration or creativity color - what was the best idea they've had

Green: is the money color - what they plan to do for money, or the dumbest thing they ever did for money.

Blue: is the sky's the limit color - what is your favorite fantasy about your future

Indigo: is an odd, or different color - what is the most daring thing they ever did.

Purple: is the color of royalty - if you were ruler of the universe for a day - what is the first thing you would do?

More activities:

http://www.ideazone.com/IceBreakers_%26_Warmups.html

http://www.eslflow.com/ICEBREAKERSreal.html

http://www.sos.net/~donclark/leader/icebreak.html

http://nwlink.com/~donclark/leader/leader.html

http://www.oncourseworkshop.com/Student%20Success%20Strategies.htm

For decision-making icebreakers activities go to http://www.ehow.com/info

Day I Active Learning and Critical Thinking
Speaker Notes

Today we will be talking about Active Learning and Critical Thinking

Warm-up Icebreaker

Use Marooned Ice Breaker here

What is Active Learning?

Active learning is not a new term, and educators should not ignore or exclude it from adult learning. Knowles (1980) (as cited in Cercone, 2008) saying "andragogy is a learning theory that is designed to address the particular needs of adults, and it is based on the idea that there are significant differences in learning characteristics between children and adults" (p. 137). Instructors demonstrate they know how to teach students by meeting the needs and by teaching what they need to know. Active learning projects such as case studies, debate, role-playing and group exercises can enhance learning and provide meaning. Active learning is hands-on learning. Active learning is about engagement.

Why is it Important?

We know that students are going out into the community on their internships and they are unable to think critically, problem-solve, they cannot apply medical terminology to patient care. Something is not working, is it time to try something new? Candela et al. (2006) who is a nursing educator, asserted, "Passive one-way transmission of knowledge that served earlier generations is inadequate to prepare current students to meet the challenges in today's complex health care systems" (p. 60).

How to Implement Active Learning?

We want the students doing something in class other than sitting. Get them into groups. Let them choose a recorder for the group. You set the parameters (who got up the earliest this morning; that person gets the job), give them a topic of a problem to solve and then get them going. Give them three minutes to respond to the problem. Both the students and faculty are actively learning because instead of the teacher standing up in front of the class, they are walking around, engaging students. If you begin with active learning at the beginning of the quarter, you will be able to keep it up, because it will be all that the students know and they will come to expect it in your class. Asking questions during lecture and the hearing the same students answer is not active learning. You cannot do away with lecture, but you can use multi-media activities to enhance your classroom so you are not just lecturing during the class period. How great is your imagination? That is how great your active learning can be. Active learning should involve all the senses. Be creative and make meaning of the curriculum.

Types of Active Learning

The following activities can be used in the classroom as part of the active learning model. Dr. Skip Downing (2013) has developed On Course that is a program for student success. I have taken the following activities: Think-pair-share, concept tests, and Thinking-aloud pair problem solving **(TAPPS) from the On Course curriculum.**

Think-pair-share.

Pose the problem and have students work on it individually for a short time; then have them form pairs and reconcile and improve their solutions; and finally call on several individuals or pairs to share their responses. This structure takes a bit more time than a simple group activity, but it includes individual thinking and so leads to greater learning.

*Concept tests***.**

Ask a multiple-choice question about a course-related concept, with distracters (incorrect responses) that reflect common student misconceptions. Have the students respond using personal response systems ("clickers") and display a histogram of the responses. If clickers are not available and the class is not huge, have the students hold up cards with their chosen responses in large letters and scan the room to estimate the response distribution. Then have the students get into pairs and try to reconcile their responses and vote again. Finally, call on some of them to explain why they responded as they did and then discuss why the correct response is correct and the distracters are not.

***Thinking-aloud pair problem solving* (TAPPS).**

This is a powerful technique for helping students work through and understand a problem solution, case analysis, or text interpretation or translation. Have the students get into pairs and designate one pair member as the *explainer* and the other one as the *questioner*. Give the explainers a minute or two to explain the problem statement line by line (or explain the first paragraph of the case history or interpret or translate the first paragraph of the text) to their partners, and tell the questioners to ask questions when explanations are unclear or incomplete and to give hints when necessary. Stop the students after the allotted time and call on several individuals to explain things to you. Once you get a satisfactory explanation, have the pairs reverse roles and continue with the next part of the problem solution or case analysis or text interpretation or translation. Proceed in this manner until the exercise is complete. In the end, your students will understand the exercise material to an extent that no other instructional technique we know of can match.

Playing with Play-Doh

As you are going through your Medical Terminology or Anatomy and Physiology, place the students in groups and let them choose a topic of pathology and instruct them to build

the anatomy and explain the physiology and the pathology. They must present to the group. They have 15 minutes.

Infomercials

Put students in groups of four. They will choose a topic and will create an infomercial. They should choose a topic that has can be resolved with a product. They will explain the pathology and the necessary anatomy and physiology to the class in the infomercial and then they will present their product and sell the class. This should not be less than 15 minutes.

Critical Thinking Speaker Notes

Critical Thinking

Critical thinking is a deeper thinking that involves asking questions, listening and looking for analysis. “Critical thinking is a lived activity” (Brookfield, 1987, p. 14). Hourani (2011) believed, “Social studies constructivist learning is enhanced when students begin processing what they have learned on multiple levels, which leads to higher-level thinking and strays away from strict factual information” (p. 231).”Critical thinking has been conceptualized as a set of skills that people can learn and apply in their everyday or professional lives”(Finn, 2011, p. 69).

If we, as educators, only focus on content, the information taught might not be useful if one changes careers. However, if we focus on critical thinking skills, these will be useful no matter how many times individuals change careers (Kennedy, 2009, p. 226). Kaddoura (2010) concluded, “Simulation presents real-life practical problems that

demand active engagement of learners in critical thinking and build learners' confidence in their decision-making abilities" (p. 507).

Identifying Critical Thinkers

Before we can teach our students to become critical thinkers, we must learn how to become critical thinkers in the classroom. We need to explore alternatives to classroom teaching and challenge assumptions or those beliefs that have been passed down from educator to educator throughout the years. As critical thinkers we can still hold passionately to certain beliefs, actions, and causes. "However, our commitment is not slavish or uniformed, the results of successful socialization. Instead, it is arrived at after skeptical scrutiny" (Brookfield, 1987, p. 23). The fundamental nature of critical thinking is evaluation. Educators need to ask probing questions. Ask the students for clarification in their thoughts. Help them to dig deeper and put ideas together. Critical thinking can be learned.

Characteristics

Critical thinking constitutes particular skills, such as the ability to assess reasons properly, to weigh relevant evidence, or to identify fallacious arguments. It is not only about listening, but listening with the third ear. What is not being said verbally that speaks loudly with non-verbal language?

Activities with Critical Thinking

Case studies can be used to promote critical thinking. Simulations and role-play will enhance critical thinking. Debate can be used because students might have to debate something that they are against personally, but will have to make a valid argument

outside their comfort zone. Ask the students to summarize, explain to a neighbor and explain how the information can be used professionally.

Critical Thinking Exercise

The following exercise is a critical thinking exercise where the students have to take into consideration a medical scenario that they may encounter in an office.

> "Fear of contracting AIDS has caused people to behave in untypical ways. For example, many refuse to have any social contact with a friend who has contracted the disease. Dentists and doctors have refused to work on patients with the disease. Undertakers have refused to embalm victims. Is such behavior justifiable?" (Ruggiero, 2007, p. 204)

Agenda for Training Day II

9:00 – 10:00	Introductions and Welcome
	Announce Student Learning Outcomes
	Warm-Up Activity
	Learner-Centered Classroom
	How to help students solve clinical problems
	Interactive Exercise
10:00- 10:15	Break
10:15- 12:00	Reflections on Exercise
	Implementing Learning groups
	Exercise and Reflection
12:00- 1:00	Lunch
1:00- 2:00	Identify Activities for a Learner-Centered Approach
2:00-2:15	Break
2:15-4:00	Interactive Exercise with Reflection
4:00	Conclusion

Day II Learner-Centered Classroom

Speaker Notes

Welcome and Learning Outcomes for Today

Today we will look at a Learner Centered Classroom. We will learn how to help students solve clinical problems and we will work on our approach to problem solving.

Warm-Up Activity

Start each day with a warm-up activity. Since your students know each other, it is good to find an activity that can at least get them warmed up for the day and not necessarily to introduce. I would like all of you to stand up and form a circle. I would like four people in each circle. I will give you each a cush-ball and you will throw this around. This is what I call the cush-ball review. I will play some music and you will throw the ball to each other in the group. When the music stops, whoever has the ball must tell the group what they learned in the last session and how it will help in the classroom. So, I am going to start the music, start throwing the ball.

What is a Learner-Centered Classroom?

A learner-centered classroom is about learning rather than teaching. A learner-centered approach is becoming very popular in higher education. According to Alsardary and Blumberg (2009), a learner-centered approach does not use a single teaching method; it emphasizes a variety of methods.It also shifts the role of the instructors from givers of information to facilitating student learning or creating an environment for learning. ". Liang (2007) stated, "Grunter (1997) describes learner-centered approach with a particular emphasis on enhancing students' learning by saying, "a learner-centered approach to college education asks you to consider how each and every aspect of your

course can most effectively support student learning" (p. 10). Liang went on to say, "It is suggested that classroom activities and interactions "in group or individual" are to be designed to "promote learner autonomy" (p. 10). Broady and Kenning (1996) argue that greater autonomy might not be achieved without engaging students "in taking responsibility for the organization and conduct of their learning" (Liang, 2007, p. 10).

As students are more involved with a learner approach, they will be able to see themselves in a different role. Instead of being a passive learner, they will be active in their learning and take responsibility for it. "The learner-centered paradigm departs from traditional teaching models by focusing on students more than teachers and learning more than teaching. Thus, classes are more egalitarian; they emphasize critical thinking, active learning, and real-world assignments" (Wohlfarth, 2008, p. 67).

Interactive Exercise

Utilize an activity from Day I here.

Implementing Learning Groups

Working in learning teams is a good way to break up the lecture. Studies have shown that group work is much more desirable for the students. Designed as an active learning strategy, Team Based Learning (TBL) is learner-centered but instructor led. It fosters individual and group accountability as small groups of students work together to answer questions. TBL employs a structured three-phase sequence: (1) preparation, during which learners study an advance assignment defined by faculty, (2) readiness assurance, where learners demonstrate knowledge through individual and group readiness assurance tests (RATs), and (3) application, when learners apply course concepts to

problem-solving exercises designed by faculty and analyzed by teams. (Koles, Stolfi, Borges, Nelson, and Parmalee, 2010, p. 1739)

How to create a Learner-Centered Approach

Wohlfarth (2008) stated that Weimer (2002) outlines the key premises of learner-centered teaching as:

> 1) Assuming that students are capable learners who will blossom as power shifts to a more egalitarian classroom.
>
> 2) Using content not as a collection of isolated facts, but as a way for students to critically think about the big questions in the field.
>
> 3) Changing the role of teacher from sole authoritarian to fellow traveler in search of knowledge.
>
> 4) Returning the responsibility for learning to the students, so that they can understand their learning strengths and weaknesses and feel self-directed in their knowledge quest.
>
> 5) Utilizing assessment measures not just to assign grades, but as our most effective tools to promote learning. (p. 67)

Identify Activities for a Learner-Centered Approach

Instead of having only one PowerPoint presentation during the quarter, part of a learner-centered approach is to have the students do projects throughout the course. The other students are given feedback forms and they anonymously give feedback to the presenter. If something was not clear on the presentation, the instructor will go over it the next time in class.

Part of the learner-centered approach is to have collaborative problem solving. The students work together and with the teacher to solve problems interactively. It is no longer the teacher giving out information, but new information is being created.

Wohlfarth (2008) used the following points in research regarding a Learner-Centered Approach: Instead of lecture-based classes, the class was designed around student questions about the material. A clinical case could be presented and the students would use active, collaborative learning to solve the issue at hand. Wohlfarth (2008) demonstrates several techniques to use active, collaborative learning in the classroom:

> Several classes reflected problem-based learning, in that a complex clinical case from one student was the basis for the class discussion. Thus, a "typical" class period might have included an experiential group activity related to the topic; processing of this activity; each student sharing the topic s/he would most like to discuss in relation to the reading; the professor and students jointly deciding how to focus the group discussion from this list of possibilities; and mini-lecturettes from the professor punctuating the discussion. At the end of class, students were asked to summarize key ideas and the relevance of their learning today to their work and lives. Alternatively, an entire classroom period might have been spent struggling with a student generated clinical case, discussing the diagnostic, clinical, and ethical implications of course of treatment.
>
> • Multiple-choice quizzes, which primarily tapped students' memorization skills, were replaced with weekly homework assignments, in which students were asked to apply, integrate, or evaluate the assigned reading. These homework assignments might include integrating ideas from this class with another class;

applying key ideas to an actual clinical case; or doing related research by reading and summarizing a related article to the

homework.

• All professors' notes were available to students via Blackboard prior to classes. Furthermore, students were also provided with the quizzes they would have taken were they not in a learner-centered class.

• Students determined the content of their research papers and were invited to turn in as many drafts of their papers, as they desired, receiving formative, but not evaluative, feedback on each draft.

• Students chose their own assignments from a possible portfolio of options. They were also encouraged to develop their own assignments to replace instructor suggestions.

• Students chose their own due dates for assignments, within certain parameters to allow for thoughtful feedback from the instructor.

• Students were asked to write an end-of-semester self-assessment, focusing on their learning strengths/weaknesses, their assessment of the type and depth of learning in the class, and what they believed their final grade should be. This paper demanded a high level of student reflective thinking. (p. 69)

Agenda for Training Day III

9:00 – 10:00	Introductions and Welcome
	Announce Student Learning Outcomes
	Warm-Up Activity
	Problem Based Learning
	Problem Solving and Critical Thinking Skills
	Interactive Exercise
10:00- 10:15	Break
10:15- 12:00	Reflections on Exercise
	Problem Based Learning
	Decision Making Skills
	Exercise and Reflection
12:00- 1:00	Lunch
1:00- 2:00	Describe ways to implement Problem Based Learning
2:00-2:15	Break
2:15-3:45	Describe ways to improve and change approach
3:45	Evaluation
4:00	Conclusion

Day III Problem-Based Learning

Speaker Notes

Today we will go over Problem-based learning and decision-making skills.

Warm-Up Activity

- Choose an activity from Day I websites

Problem Based Learning

Problem-based learning (PBL) is a teaching/learning strategy through which students learn course content by solving real-world problems associated with the course material. Although the benefits of PBL have been amply demonstrated in the medical field and other selected subject areas, few studies have examined PBL's potential contributions in subjects that combine content from multiple disciplines. To address this issue, the current study explored the differential effects of PBL versus lecture-based learning on the achievement, problem-solving skills, and attitudes toward instructional strategies of undergraduate students enrolled in a newly created environmental biotechnology course. Data collected through quizzes, scenarios, surveys, and interviews revealed greater achievement, problem-solving skills, and positives attitudes toward the learning process of students exposed to PBL.

Barrows (1994) was a big proponent of problem-based learning. He had observed medical students that were unable to apply what they had learned to real life scenarios. He stated the following discourse:

Although there are varying claims regarding when PBL first evolved, in the 1960s

> Barrows (1994) recognized that medical students sometimes failed to apply their textbook knowledge during their hospital internships. In response, Barrows suggested that medical students anchor their knowledge around clinical problems rather than solely around books. By working with actual patients, analyzing symptoms, and determining the information they would need to properly diagnose an ailment, Barrows demonstrated that activation of prior knowledge in real-world contexts strengthened students' reasoning processes when making medical diagnoses. (Reynolds & Hancock, 2010)

The medical assisting students need to know how to solve problems and make decisions. We have to be able to give them clinical scenarios in the classroom to train them how to apply what they have learned.

How to approach problem-based learning

Reynolds and Hancock (2010) have given tips on how to engage students into problem-based learning. Use the following suggestions in your classrooms:

- A real-world problem is presented to teams of students who assess how well they are prepared to solve the problem with their previously acquired knowledge;
- The students refine the nature of the problem and outline issues related to the problem that they do not understand;
- The students collectively prioritize the issues and plan who, when, where, and how these issues will be investigated within the group;
- The students collectively attempt to solve the problem, exploring previous learning issues and establishing new issues as they progress in solving the problem;

> ● The students then synthesize their collective thoughts and decide upon the best solution to the problem; and
>
> ● After finishing their work, the students evaluate themselves, their peers, and the instructional process for the purpose of deciding how they may improve their performance in the future. (p. 176)

Problem Solving and Critical Thinking Skills

How does problem solving and critical thinking relate? Even though our students are not nursing students, they are still going into the medical world and this strategy may be a viable alternative. Kaddoura (2010) explained,

> Nurse educators strive to promote learners' critical thinking skills, learning, and confidence through various teaching approaches because they cannot prepare nurses for every situation that they may encounter in clinical practice. An educational strategy that has lately been adopted by some nurse educators is simulation. (p. 506)

Interactive Exercise

The following is an exercise to develop critical thinking and decision making. It also has an ethical component to it.

NUCLEAR FALLOUT SHELTER EXERCISE

You are trapped in a fallout shelter with the members of your group. The instruments in the shelter indicate that it will not be safe for the class to leave the shelter for six months. Luckily, there is enough food, water, and other facilities to permit the class to remain in the shelter for the required six months.

A telephone in your shelter is linked to a fallout shelter in another city. One member of your group just spoke with a person who is trapped in the other shelter and reports the following information:

"There are nine people in the other shelter. After surveying their provisions, it has become apparent that there is only enough water to keep four members of that group alive the six months before it is safe to leave the shelter."

The other group realizes that five of its members will have to be put out of the shelter so that those remaining will have a chance to live. However, they have been unable to make the necessary decision as to who will be put out of their shelter.

The other group has asked your Ethics in Management group to make a decision on its behalf. It has agreed to implement your decision immediately and without question.

The group in the other shelter consists of the following people:

a male carpenter, 25 years old.

a male biologist, 50 years old.

a female attorney, 40 years old.

a male minister, 40 years old.

a pregnant college student, 28 years old.

a female college student, 18 years old.

a male mental patient, 48 years old.

a female child, six years old.

a male physician, 72 years old.

Your task, as a group, is to develop a list of four people who will remain in the other shelter. (University of Phoenix, 2011)

Decision-Making Skills

Decision-making is about identifying a problem and evaluating a choice. You can use a decision wheel in class when giving your students a problem that they must make a decision (see handout). Use this wheel model for every decision. You, as a facilitator can give your students decision-making skills.

Medical assistants are professionals in the doctors' offices and clinics. They need a background in critical thinking and decision making. Although nursing students have a different curriculum, this can be applied in the medical assisting classroom. According to Dowding, Gurbutt, Murphy, Lascelles, Pearman, and Summers (2012) they explained,

> In nursing, as in other areas of professional activity, it is therefore important that practitioners exhibit sound judgment and decision-making skills. This in has three requirements: firstly, that students develop knowledge or domain expertise in their field of practice; secondly, that they possess the thinking skills to use that knowledge effectively; and thirdly, that they have an understanding of what constitutes good decision-making practice" (p. 349).

Education also has to render visible how decisions are made so that, together, curriculum design and practice facilitation offer students a clinical decision-making framework that can be understood and applied in any unique real-world situation across the clinical landscape (Dowding et al., 2012, p. 351).

Exercise and Reflection

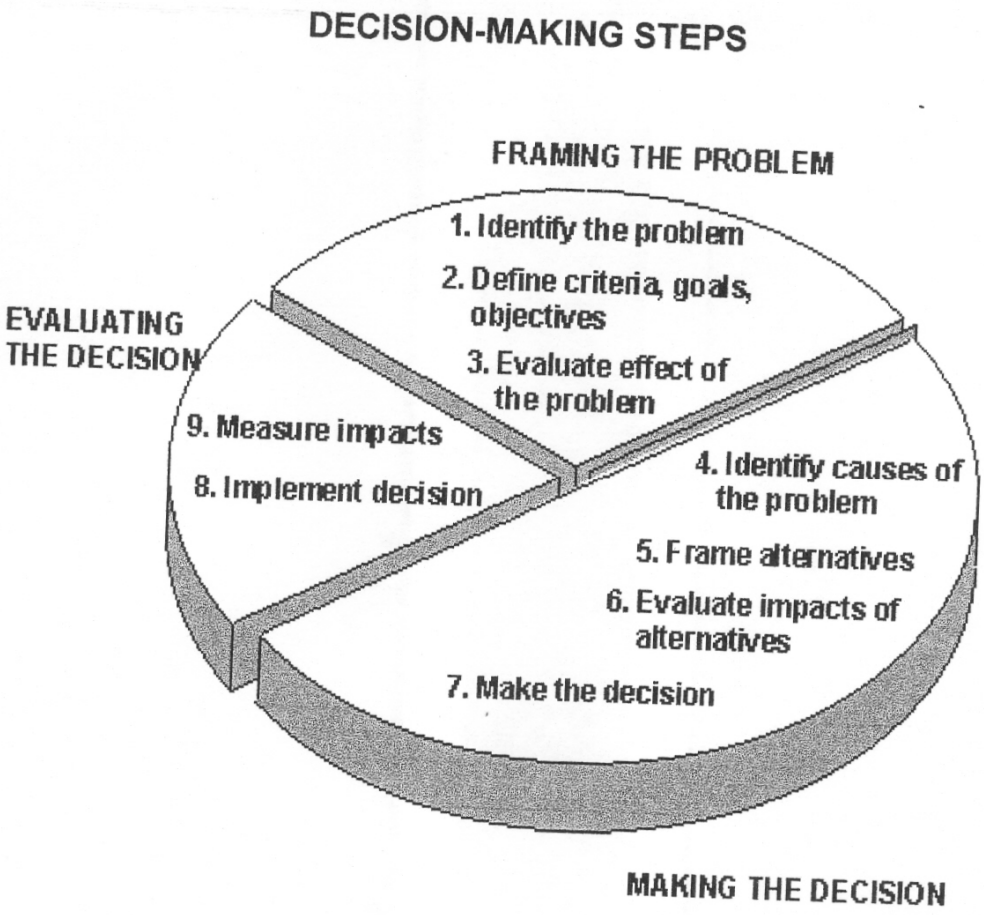
The following is an ice-breaker to test decision making skills. The website is found in Day I websites.

For this decision-making icebreaker game, the leader will need four bags. Place a small treat inside each bag. Ask for three participants from the group. Each volunteer chooses a bag based on how it looks. Each volunteer can keep his bag, trade it with someone else or trade it for the extra fourth bag. Next, each volunteer feels the object inside the bag without looking. Then he has the option to trade again. Finally, each person opens his bag and sees what is inside. The leader of the activity should ask why certain bags were chosen and what changed their desire for that bag. Ask participants if they felt confident in the decision made or if there were moments of doubt. Repeat the activity several times, so everyone in the group has a chance to play.

Describe ways to implement Problem Based Learning in the classroom

Describe ways to improve and change your classroom approach

Decision Making Wheel



Professional Development Training Evaluation

Session Title: _____ **Date:** _____

Presenter(s): _____ **Training Location:** _____

Participant Name *(optional)*: _____

Please rate each area from "Poor" to "Excellent" by circling a number or "NA" if not applicable to this session.

Content

Poor *Excellent*

1. Objectives of the training were clearly stated.	1	2	3	4	NA
2. Objectives of the training were met.	1	2	3	4	NA
3. Information can be applied in my work.	1	2	3	4	NA
4. Ideas and skills presented will enhance student learning/work performance.	1	2	3	4	NA

Delivery

Poor *Excellent*

5. Presentation was effectively delivered.	1	2	3	4	NA
6. Materials were appropriate and useful.	1	2	3	4	NA
7. Time was used effectively.	1	2	3	4	NA
8. Questions and needs were addressed.	1	2	3	4	NA

Learning

Poor *Excellent*

9. This training and follow-up activities helped me acquire the intended knowledge and skills.	1	2	3	4	NA
10. This training and follow-up activities helped me integrate this material into my instruction.	1	2	3	4	NA

Support and Change

Poor *Excellent*

11. My implementation of the training was advocated, facilitated and supported during follow-up.	1	2	3	4	NA
12. My implementation of this training was supported at my school.	1	2	3	4	NA
13. This training has begun to change my classroom practices.	1	2	3	4	NA
14. Sufficient materials were made available to implement this new learning.	1	2	3	4	NA

Implementation

Poor *Excellent*

15. Collaboration during follow-up helped me to effectively implement new skills and knowledge.	1	2	3	4	NA
16. Collaboration during follow-up helped me learn ways to modify instruction to meet the needs of diverse student groups.	1	2	3	4	NA

Outcomes

Poor *Excellent*

17. My new learning is likely to increase student performance.	1	2	3	4	NA
18. Overall, my new learning is having a positive impact on my students (i.e. motivation, confidence, etc.).	1	2	3	4	NA

Overall Evaluation

Poor *Excellent*

19. What is your overall evaluation of this training?	1	2	3	4	NA
20. Will you recommend this training to others if it is offered in the future?	no				yes

COMMENTS

_____

_____

_____

_____

_____

Professional Development Evaluation Form (2002). Lee County Public.

Appendix B: Principles of Adult Learning Scale (PALS)

DIRECTIONS

The following survey contains several things that a teacher of adults might do in a classroom. You may personally find some of them desirable and find others undesirable. For each item please respond to the way you most frequently practice the action described in the item. Your choices are 'Always,' 'Almost Always,' 'Often,' Seldom,' 'Almost Never,' and 'Never.' On your answer sheet, circle 0 if you always do the event; circle number 1 if you almost always do the event; circle number 3 if you seldom do the event; circle number 4 if you almost never do the event; and circle number 5 if you never do the event. If the item *does not apply* to you, circle number 5 for never.

1. I allow students to participate in developing the criteria for evaluating their performance in class.	1	2	3	4	5
2. I use disciplinary action when it is needed.	1	2	3	4	5
3. I allow older students more time to complete assignments when they need it.	1	2	3	4	5
4. I encourage students to adopt middle class values.	1	2	3	4	5
5. I help students diagnose the gaps between their goals and their present level of performance.	1	2	3	4	5
6. I provide knowledge rather than serve as a resource person.	1	2	3	4	5
7. I stick to the instructional objectives that I write at the beginning of a program.	1	2	3	4	5
8. I participate in the informal counseling of students.	1	2	3	4	5
9. I use lecturing as the best method for presenting my subject material to adult students.	1	2	3	4	5
10. I arrange the classroom so that it is easy for students to interact.	1	2	3	4	5
11. I determine the educational objectives for each of my students.	1	2	3	4	5
12. I plan units which differ widely as possible from my students' socio-economic backgrounds.	1	2	3	4	5
13. I get a student to motivate himself/herself by confronting him/her in the presence of classmates during group discussions.	1	2	3	4	5
14. I plan learning episodes to take into account my students' prior experiences.	1	2	3	4	5
15. I allow students to participate in making decisions about the topics that will be covered in class.	1	2	3	4	5
16. I use one basic teaching method because I have found that most adults have a similar style of learning.	1	2	3	4	5
17. I use different techniques depending on the students being taught.	1	2	3	4	5
18. I encourage dialogue among my students.	1	2	3	4	5
19. I use written tests to assess the degree of academic growth rather	1	2	3	4	5

than to indicate new directions for learning.	
20. I utilize the many competencies that most adults already possess to achieve educational objectives.	1 2 3 4 5
21. I use what history has proven that adults need to learn as my chief criteria for planning learning episodes.	1 2 3 4 5
22. I accept errors as a natural part of the learning process.	1 2 3 4 5
23. I have individual conferences to help students identify their educational needs.	1 2 3 4 5
24. I let each student work at his/her own rate regardless of the amount of time it takes him/her to learn a new concept.	1 2 3 4 5
25. I help my students develop short-range as well as long-range objectives.	1 2 3 4 5
26. I maintain a well disciplined classroom to reduce interference to learning.	1 2 3 4 5
27. I avoid discussion of controversial subjects that involve value judgments.	1 2 3 4 5
28. I allow my students to take periodic breaks during class.	1 2 3 4 5
29. I use methods that foster quiet, productive desk work.	1 2 3 4 5
30. I use tests as my chief method of evaluating students.	1 2 3 4 5
31. I plan activities that will encourage each student's growth from dependence on others to greater independence.	1 2 3 4 5
32. I gear my instructional objectives to match the individual abilities and needs of the students.	1 2 3 4 5
33. I avoid issues that relate to the student's concept of himself/herself.	1 2 3 4 5
34. I encourage my students to ask questions about the nature of their society.	1 2 3 4 5
35. I allow a student's motives for participating in continuing education to be a major determinant in the planning of learning objectives.	1 2 3 4 5
36. I have my students identify their own problems that need to be solved.	1 2 3 4 5
37. I give all my students in my class the same assignment on a given topic.	1 2 3 4 5
38. I use materials that were originally designed for students in elementary and secondary schools.	1 2 3 4 5
39. I organize adult learning episodes according to the problems that my students encounter in everyday life.	1 2 3 4 5
40. I measure a student's long term educational growth by comparing his/her total achievement in class to his/her expected performance as measured by national norms from standardized tests.	1 2 3 4 5
41. I encourage competition among my students.	1 2 3 4 5

42. I use different materials with different students.	1	2	3	4	5
43. I help students relate new learning to their prior experiences.	1	2	3	4	5
44. I teach units about problems of everyday living.	1	2	3	4	5

SCORING THE PRINCIPLES OF ADULT LEARNING SCALE (PALS)

Positive Items

Items number 1, 3, 5, 8, 10, 14, 15, 17, 18, 20, 22, 23, 24, 25, 28, 31, 32, 34, 35, 36, 39, 42, 43, and 44 are positive items. For positive items, assign the following values: Always=5, Almost Always=4, Often=3, Seldom=2, Almost Never=1, and Never=0.

Negative Items

Items number 2, 4, 6, 7, 9, 11, 12, 13, 16, 19, 21, 26, 27, 29, 30, 33, 37, 38, 40, and 41 are negative items. For negative items, assign the following values: Always=0, Almost Always=1, Often=2, Seldom=3, Almost Never=4, and Never=5.

Missing Items

Omitted items are assigned a neutral value of 2.5.

Factors

Factor 1: Learner-centered Activities

Item #	2	4	11	12	13	16	19	21	29	30	38	40	Total Score
Score													

Factor 2: Personalizing Instruction

Item #	3	9	17	24	32	35	37	41	42	Total Score
Score										

Factor 3: Relating to Experience

Item #	14	31	34	39	43	44	Total Score
Score							

Factor 4: Assessing Student Needs

Item #	5	8	23	25	Total Score
Score					

Factor 5: Climate Building

Item #	18	20	22	28	Total Score
Score					

Factor 6: Participation in the Learning Process

Item #	1	10	15	36	Total Score
Score					

Factor 7: Flexibility for Personal Development

Item #	6	7	26	27	33	Total Score
Score						

Computing Scores

An individual's total score on the instrument is calculated by summing the value of the responses to all items. Factor scores are calculated by summing the value of the responses for each item in the factor.

Factor Score Values

Factor	Mean	Standard Deviation
1	38	8.3

Principles of Adult Learning Scale

(Taken from Adult Learning Methods, 2nd. Ed. Editor, Michael W. Galbraith, 1998)

Note: Dr. Gary Conti hereby grants permission for practitioners and researchers to reproduce and use the Principles for Adult Learning Scale in their work (Conti, 2004, p. 91).

Appendix C: Questions for One-on-One Interviews

1. In an effort to meet the mission of preparing students for academic success and understanding medical terminology, how do you think employing active learning projects in your classroom affects the students' understanding of medical terminology?

2. What types of activities could the students participate in to increase their knowledge and application of medical terminology?

3. To what extent were the students able to make medical terms applicable to patient care?

4. How were you able to implement an activity to ensure the students' ability to understand the implications of medical terms as each applied to a specific patient case?

5. How did your daily activities link to the lesson plan?

Probes

1. What did you discover by using active learning projects?

2. How were you able to discern if they had increased their ability to apply the terminology?

3. What critical thinking skills do students need to apply medical terminology?

4. How did your lesson plan assist the students to have a better understanding of terminology?

Appendix D: Consent Form

You are invited to take part in a research study that involves active learning projects in the classroom. You were chosen for this study because you are a full-time, medical instructor. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

A researcher named Sandra Hightower, who is a doctoral student at Walden University, is conducting this study. You may already know the researcher as a faculty member at this college, but this study is separate from that role.

Background Information:
Medical office personnel, in the city, state the students doing internships do not have the competencies in spelling, understanding, critical thinking or applying correct medical terminology as it relates to patient care in the doctor's office. The intent of this study is to investigate the gap between the current methods of lecturing and active learning projects that are designed to engage students in learning medical terminology, teach critical thinking skills, and develop decision-making techniques.

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

- Participate in audio- taped Interview 1 (30 to 60 minutes) during which you will answer questions by sharing your opinion, position, and experience in the classroom. This will occur in **Week 5** of the quarter.
- Participate in a classroom observation **weeks six and seven** of the quarter, where you will be observed teaching and interacting with the students for a period of 3 hours. The researcher has allowed one hour of the class for attendance and accepting homework.
- Participate in audio-taped Interview 2 (30 to 60 minutes) during which you will respond to questions by sharing your opinion, position, and experiences in order to expand on the information discussed in Interview 1 and review information from the classroom observation. This will occur in **Week eight** of the quarter.
- Perhaps participate in a member check (45 to 60 minutes) during which the researcher will review the study findings with you. During this meeting, you will have the opportunity to let the researcher know whether the findings describe your experience in the classroom or not. This member check will occur in **Week 10** of the quarter.

Sample questions used in Interview 1 in Week 5

1. In an effort to meet the mission of preparing students for academic success and understanding medical terminology, how do you think employing active learning projects in your classroom affects the students' understanding of medical terminology?

2. What types of activities could the students participate in to increase their knowledge and application of medical terminology?

3. To what extent were the students able to make medical terms applicable to patient care?

4. How were you able to implement an activity to ensure the students' ability to understand the implications of medical terms as each applied to a specific patient case?

5. How did your daily activities link to the lesson plan?

Probes Used for Second Interview in Week 8

1. What did you discover by using active learning projects?

2. How were you able to discern if they had increased their ability to apply the terminology?

3. What critical thinking skills do students need to apply medical terminology?

4. How did your lesson plan assist the students to have a better understanding of terminology?

Voluntary Nature of the study:

Your participation in this study is voluntary and you have the right to withdraw or discontinue the interviews at any time. No one at College will treat you differently if you decide not to be in the study. You have the right to refuse to answer any question at any time. You may discontinue the study at any time without penalty.
You should keep a copy of your informed consent at all times.

Risk and Benefits of being in the study:
Being in this type of study involves some risk of minor discomforts such as fatigue or stress. The benefits of being in the study are an intrinsic feeling of helping students succeed to graduation and become employment because of a successful internship. The benefit to society is such that more qualified competent medical personnel will be added to the workforce after graduation and internship.

Compensation:
There is no monetary compensation for your participation in this study.

Privacy
Any information you provide will be kept confidential. You will be given a color code during the study and your name will not be used during any part of the study or during the interviews. The information from interviews and observations will be kept in a locked cabinet and a locked file on the researcher's computer. This information will be kept under lock for a period of five years and then will be shredded to prevent any breach in confidentiality.

Contact and Questions:
You may ask questions about the study now or you may contact me anytime, You may also contact the Research Participant Advocate at 800-925-3368, extension * 1210.

Statement of Consent:
I have read the above information, I have had the opportunity to ask questions and receive answers about the study, and I understand what will be expected of me during the research process. By signing below, I am agreeing to the terms of this study.

Printed Name of Participant _____

Date of Signature _____

Written Signature of Participant _____

Written Signature of Researcher _____

Appendix E: Letter of Cooperation From a Community Research Partner

College
1111 Park St.
Anytown, CA 95555

September 24, 2012

Dear Sandra Hightower,

- Based on my review of your research proposal, I give permission for you to conduct the study entitled Effect of Active Learning on Student's Academic Success in the Medical Classroom within the College. As part of this study, I authorize you to recruit four medical instructors for interviews, observations and collection of internship paperwork. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include: provide the medical instructors for the research, conference room or empty classroom for interviews. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the research team without permission from the Walden University IRB.

Sincerely,

Appendix F: Observation Guide

Faculty Name: Click here to enter text.	
Evaluator Choose an item.**:**	**Campus: THE College**
Date of Observation: Click here to enter a date.	

Behavior in classroom	**Comments/ Examples**
Models professionalism	
Opens session with an overview of prior learning and a discussion of the day's learning goals	
Plans & delivers creative thinking & active learning activities	
Asks effective questions	
Challenges students with problem-solving activities	
Connects course concepts to the workplace	
Addresses diverse learning styles	
Checks frequently for understanding	
Varies presentation styles	

Appendix G: Classroom Observation Schedule

Yellow	12/4/12	8:30am-12:20pm
	12/11/12	8:30am-12:20pm
Brown	12/4/12	1:00pm-4:00pm
	12/11/12	1:00pm-4:00pm
Magenta	01/30/13	6:00pm-9:00pm
	02/13/13	6:00pm-9:00pm
Green	2/21/13	6:00pm-9:00pm
	2/28/13	6:00pm-9:00pm

Curriculum Vitae

SANDRA HIGHTOWER

PROFILE

Seasoned, dedicated, and versatile professional, backed with broad teaching and leadership experience; expert at overseeing associate programs, undergraduate business courses, and other school activities within diverse settings. Interested in pursuing a challenging administration position in higher education to apply strengths in coaching and feedback provision, supervision, policy implementation, office administration, human resources, training curriculum facilitation, as well as budgeting.

- Excellent interpersonal and communication skills complemented with creative problem resolution capabilities.
- Strong commitment in providing training and support, combined with proficiency in identifying needs, developing objectives and strategies, defining content, and selecting appropriate learning activities.
- Hands-on and influential management skills, with strong motivation, team building, liaison, and management abilities; capable of consistently satisfying and exceeding organizational targets and objectives.
- Ability to handle responsibilities relevant to analyzing research trends, capturing learning opportunities, and monitoring plans to improve academic performance and achieve maximum potential.

EDUCATION

All But Dissertation (ABD) in Education | *In Progress, Expected Completion Date: Dec. 2013*
Concentration: Higher Education and Adult Learning
WALDEN UNIVERSITY, MINNEAPOLIS, MN

Master of Arts in Organizational Management
UNIVERSITY OF PHOENIX, SACRAMENTO, CA

Bachelor of Arts in Management
UNIVERSITY OF PHOENIX, SACRAMENTO, CA

SUMMARY OF EXPERIENCE

- Designed and delivered curriculum, course work, and materials to students, specializing in undergraduate business courses; management theory and practice; and organizational behavior, ethics, and sociology.
- Handled and taught various courses to medical and business classes to maximize students' success; monitored student's progress toward attainment of educational objectives.
- Fostered and maintained open communications, enhanced individual learning goals, and instilled a strong commitment in meeting educational objectives established for every student.
- Communicated with students to provide information in response to all inquiries as well as to address and resolve issues and concerns in a timely manner.
- Oversaw students by establishing an appropriate classroom climate; earned respect through efficient leadership and promotion of high expectations for all students; employed innovative techniques to teach students on how to access information efficiently and safely.
- Assumed human resource functions, such as hiring and interviewing staff; providing comprehensive performance review; and reporting training data to upper management
- Managed budget and student services.
- Supervised and closely monitored remote staff of eight trainers with no more that 1% under or over budget.
- Organized and facilitated more than 60 training sessions per year.

WORK HISTORY

COLLEGE, RANCHO CORDOVA, CA

Faculty	**2007–Present**
Director of Academic Affairs	**2006–2007**

UNIVERSITY OF PHOENIX, PHOENIX, AZ

Adjunct Faculty	**1999–Present**

, RANCHO CORDOVA, CA
Director of Training **2004–2007**

EL DORADO HILLS, CA
Underwriter Trainer **2002–2004**

PROFESSIONAL TRAINING

- **2012**, Active Learning in Classroom
- **2011**, Engaging Adult Students
- **2010**, OnCourse Training
- **2009**, Classroom Management
- **2006**, Training Financial Aid Advisors
- **2005**, Engaging Adult Learners

ACTIVITIES

- Kappa Delta Pi
- Sunday School Teacher Adult Women