“Running Head.” Educating the Dental Hygienist

Educating the Dental Hygienist Yesterday, Today and Tomorrow

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The practice of educating dental hygienist began in the early 1900’s. The training focused on the specific mechanics necessary to remove calcified deposits from enamel tooth surfaces. This is a rote learning activity that aims to reinforce instrumentation techniques. Good eye-hand coordination is helpful to learn instrumentation, but repetition, time to practice and reinforcement of the skill is mandatory. The process has not changed much over the years and schools continue to use a behaviorist approach in teaching instrumentation. Memorization of anatomy, physiology, medications and dental procedures is another component in educating the dental hygienist. The educator provides the information, the student studies and commits the information to memory with no critical thought. These skills have been and continue to be taught the same way. There has been little change in the behaviorist approach to teaching the necessary skills in dentistry. The curriculum hours have increased to accommodate new clinical approaches and the new technologies for instrumentation but didactic courses have seen little change. The early 1990’s brought a new era to teaching in the health sciences. The implementation of competency-based education has integrated critical thinking skills into the teaching model. These new models include student’s self-assessment skills, community-based education and problem based learning techniques. This paper will explore these changes in dental education. The techniques used still include a behaviorist approach for instrumentation skills and learning the concrete materials needed in dental hygiene treatment. The last twenty years have seen an increase in humanism and
cognitive thinking by the students from using a competency-based approach to learning. The faculty and students work together in problem solving. These new techniques are now a vital component of dental hygiene curriculum aimed to make hygienist life long learners and vital members of the health care team.

Education

Dental hygienists are focused on preventing dental disease. Dental hygienists are educated and trained to evaluate the patient's oral health, expose, process and interpret dental x-ray films, remove calculus deposits, stains, and plaque above and below the gum line. They are also focused on preventing dental disease and providing education about oral health care, tooth brushing, the use of dental floss, and other oral health products. They practice evidence-based dentistry and educate patients on systemic disease issues related to oral health. The dental hygienist is a well rounded, people orientated, comprehensive team member in the dental practice. They must also have excellent manual dexterity and tactile sensitivity to properly manipulate dental instruments in the patient's mouth. The practice of dental hygiene came about thanks to Dr. Albert Fones. He was astutely aware of the importance of disease prevention in the oral cavity. He began training his cousin, Irene Newman, to assist him in dental procedures. In 1907, under the direction of Dr. Fones, she performed the first prophylaxis consisting of the
removal of plaque and tarter off the teeth. Dr. Fones opened the first program to train dental hygienist in 1913 in the back of his carriage house. The first class graduated in 1915. After only a few years, he took time away from his practice to travel. Dr. Fones passed away in 1938, but his legacy continues. The Fones School of Dental Hygiene, the world’s first, was started in Bridgeport, Connecticut in 1949. (University of Bridgeport, 2003). The program focused on anatomy and clinical practice. Programs today still include these items, along with implementing more advanced technologies, incorporating evidence-based dentistry practices and exploring new teaching methods aimed at enhancing retention. A dental hygienist today must be committed to life long learning, which includes obtaining continuing education credits for licensure and constantly reviewing current literature to stay abreast of research and technology. The hygienist today must also be a life long educator who uses evidence-based dentistry, personal experience and patient desires to motivate and teach the patient. After formal education, the successful dental hygienist continues to learn and teach from a social-cognitive and constructivist orientation. The successful dental hygienist is self-motivated and continues to build on experience and construct new schemas.

*The beginning*

Learning the proper instrumentation is a tedious and repetitive task. Instructors would show the correct hand placement and technique, and then students mimic the procedure. It’s basic rote learning. It takes a few months of continuing this process before the task can be mastered. The anatomy, physiology, radiology theory, dental
materials and dental theory courses are all taught in a lecture format. There was little interaction or discussion with faculty and basic memorization was the format for learning and retaining. People entering a dental hygiene program are all adults. In the 1950’s it was a lot of nurses and doctors wives. The learning of instrumentation is taught from a behaviorist perspective. Teaching instrumentation includes the three basic assumptions of the behaviorist model being its observable, influenced by the environment in which it is learned and the behavior is continually reinforced. (S.B. Merriam, et al, 2007, p. 278). Students watch the technique, immediately repeat the technique and get instant feedback. The process continues with feedback from instructors, but there is no allowance for changing the technique. Past experience has little impact on instrumentation. The role of healthcare providers in the 1950’s was seen as knowledgeable and authoritative. There was not much emphasis on patient interaction and patients did not question treatment. The practitioner dictated the necessary treatment and the patient complied. The student learned in a behaviorist manner from an authoritative instructor and the student educated their patient in the same manner.

Today

The teaching of instrumentation has not changed dramatically over the years. It is still a very tedious task that requires a great deal of dexterity. Learning the proper technique still requires a rote approach, with lots of repetition. New technology has produced computer simulations and interactive models that the manual dexterity can be practiced. Over the years the didactic portion of dental hygiene education has increased
in scope and breadth. A rise in courses that cover research, nutrition implications, systemic diseases, ethics, cultural diversity and public health can be seen in curriculums. There are also new trends in how we educate the dental hygienist. It’s not enough to teach only the practical theories, but we must teach problem solving skills and critical thinking. Operant condition works well for instrumentation techniques but the educator needs to use different lenses to understand and optimize the learning. The hygienist becomes a humanist, being self motivated and autonomous in the learning. The cognitive theory can be applied to build problem solving skills that can be applied in different situations. The cognitive approach builds on the concept the learner is active in processing information from prior knowledge and making interpretations. (S.B. Merriam, et al, 2007, p. 285).

**Competency-based dental education.** The idea of competency in teaching to dental hygiene students is relatively new. Although the term is slightly ambiguous, most define it as possessing the knowledge and skills to adequately perform dental hygiene services. The belief is that one must be competent to graduate and proficiency is something that can only be attained after time the skills and knowledge are implemented on a regular basis. “The concept of competency-based education was introduced in dental education in 1993. It is also a required element in accreditation for dental schools.” (F.W. Licari, D.D.S., et al, 2008, p. 8). The programs that focus on competency-based education use less letter grades and provide more oral and written feedback for students. The goal is to promote a self directed learner. The student becomes a humanist learner,
having the freedom of choice and more control of their growth and future, traits inherent in the humanist theory. (S.B. Merriam, et al, 2007, p. 282). This learning theory promotes evaluation by the learner and self-actualization. The instructor is guiding and takes a social-cognitive approach in teaching. The difficulty implementing competency into dental education is in defining the term, competency. The American Dental Education Associations did a survey and found just under half of the schools surveyed defined competence as a set of “skills, knowledge and values to perform dentistry,” the other schools defined competent as part of the clinical exam, accreditation requirements or number of clinical skills to be mastered. (F.W. Licari, D.D.S., et al, 2008, p. 10). The confusion in defining competency is reflected in how some schools have implemented the process into their programs. The behaviorist approach is responsible for the core and foundation of the learning, but to effectively use competency-based education requires a humanist and constructivist approach from the educator and the student. The epiphany takes place when the student reflects on what has been learned and adjusts appropriately, instead of focusing on requirements to pass an exam or stage of clinical evaluation. The student decides when they will be tested and on what topic. This approach allows for the student to be active in the learning process and results in more favorable learning outcomes. The student who has tunnel vision on passing a test will not retain the information. Allowing the student to transform through the learning and integrate the cognitive with the psychomotor skills is the goal of competency-based teaching for dental hygiene students.
Self-Assessment. Education is realizing the importance for students to have the ability to self-asses their skills. Self-assesment is a necessary skill for a student to adapt successfully to working in private practice. The practicing dental hygienist spends much of their time alone with the patient and it requires them to have confidence and be self directed. The goal of self-assessments in dental hygiene curriculum is to promote critical thinking and reflection by the student. As Merriam, et al points out, the goals of self-directed learning promote autonomy and transformational learning. (2008, p 107). Self-assessment can be viewed as a tireless and unproductive task by the novice student. It can be difficult to critically analyze ones own actions, but the discoveries can be enlightening. The council on dental accreditation has mandated the use of self-assessment skills in dental hygiene curriculum. (J.A. Bowers and J.E. Wilson, 2002, p. 1146). This technique is similar to reflection of practice seen in the constructivist approach. Students use forms to evaluate themselves. Bowers and Wilson, found that the self-assessment improved critical thinking skills, communication and independence of dental hygiene practitioners. (2002, p.1151). This skill is vital in making hygienist life long learners, which is a critical part of their success and improvement of patient care.

Community-based education. There is a disconnect in education when a student moves from the university life to that of private practice. One goes from student to employee and must have the necessary ability to implement their knowledge on their own. The practice of having students work in community settings is not new, but how they reflect on that experience has changed in the curriculum. The aim is for the rotation
to be more than an apprenticeship for the student and to promote problem solving skills. The impact and benefit of reflection is evident in so many learning theories. A student who sees patients outside of the academic campus gains experience working with different members of the dental team and dealing with the different socio-economic barriers to care faced by patients. Programs use different methods to add the reflection component to the community experience. The most widely used is a written journal. The use of journals is a reflective process that allows students to think about their experience, reflect on their actions, discuss emotions involved and learn from the experience. Group discussions are used so students can reflect orally and evaluate their own beliefs and responses; reflecting with peers helps students learn and makes them an active participant in the learning. (R. Straus et al, 2003, p 1238). To help facilitate open and honest reflections, the journals do not get graded on grammar and punctuation. They are for personal use and faculty only validate the writing assignment. Walker (2006) refers to Schons theories of reflection-in-action and reflection-on-action in journaling. Most students aren’t given the time to reflect on their actions, the journal provides that opportunity. Then as they become proficient in their vocation, they can engage in reflection-in-action. This type of experiential learning can be extremely beneficial in a career in dental hygiene, which is usually a solo career.

_Tomorrow_

How will all this continue to effect the education of future dental hygienist is unknown. Many faculty members have difficulty changing from traditional teaching
methods. Faculty must be calibrated and enthusiastic. Many institutions hire part-time faculty from the working world; they bring in real world experience but usually have limited background in teaching theories and methodologies. The use of computers and new technologies will also change education. The task of dental hygiene will always require the student to learn basic instrumentation principles and patient treatment procedures. The future hygienist will develop problem solving skills to improve interaction with patients in a variety of situations.

The core of dental hygiene education will always revolve around a behaviorism. Learning the fundamentals of instrumentation is still based in rote learning. Future teaching methodologies are incorporating the learner’s perspective and promoting uniform interaction between students and educators. Dental hygienist is skilled clinicians that can perform many of the required tasks without much conscious thought. The implementation of competency-based education, self-assessment techniques and community-based education will improve critical thinking skills of students. Using these techniques allows students to be involved in learning and increases retention of the information. The professional dental hygienist needs to be a life-long learner. These learning tools help the future hygienist develop the skills necessary for success.
Reference


