

Introduction

It was an arduous decision to pursue a doctorate degree, but I desired to learn more about various adult learning theories. Acquiring this new knowledge inspired me to question the structure of the dental hygiene courses I teach. Is my course structured only to cover content, while sacrificing student understanding? Are my lectures aligned with specific desired outcomes? My role as a dental hygiene educator has often focused on covering specific content to prepare students for board exam and then real-world clinical practice. The adult learning theory that intrigued me the most was “Transformative Learning” which utilizes the three-stages of “backward design” curriculum planning. The approach of backward design is a deliberate approach “to design curriculum beginning with the end (the desired results) then identifying the acceptable evidence necessary to determine that the results have been achieved (assessments) followed by learning experiences and instructions” (Wiggins & McTighe 2005) (see figure 1). The dental hygiene curriculum for each course is guided by a set of identified dental hygiene standards which are aligned with preferred results, therefore established evidence must be identified to address that the anticipated learning outcomes will be attained. Only then can methods and activities be planned to achieve desired results that will yield understanding. Students’ comprehension of course material can be measured by application, analysis, synthesis, and evaluation (Merriam & Bierema, 2014).

Figure 1. Stages of Backward Design

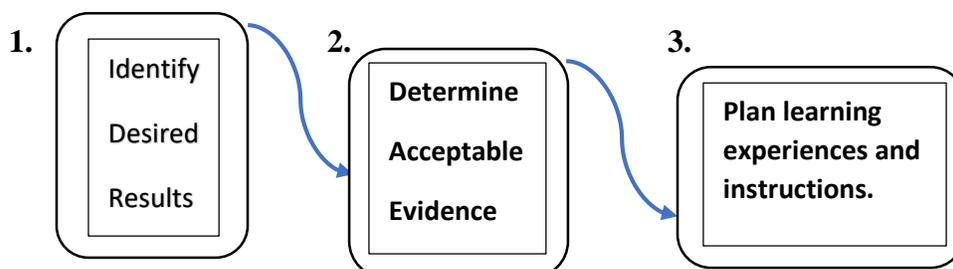


Figure 1. Stages of Backward Design. Adapted from Wiggins, G. P., & McTighe, J. (2005).

Traditional Learning Theories that Support Backward Design

Transformative Learning is an adult learning theory that is congruent with backward design and implies that understanding occurs through transfer. Wiggins & McTighe (2005) explains that learners are expected to transfer previous lessons learned and apply it to other interrelated but different situations (p.41). Transfer should be the focus of teaching and educators must help their learners to transfer previous knowledge by assimilation and adaptation, and also assist in transferring their essentially limited learning beyond the mere rote learning and recall (Wiggins & McTighe 2005). In backward design, promotion of understanding is best suited with inquiry to stimulate connections and promote transfer of ideas from one setting to another. “Essential questions foster inquiry, understanding, and transfer of learning” (Wiggins & McTighe 2005., p. 22).

Transfer of knowledge can also be integrated with Bloom’s taxonomy of application. Bloom’s taxonomy coincides with the principles of “understanding” presented in backward design. According to Wiggins & McTighe (2005) Bloom’s taxonomy specifies that for understanding to have occurred the learner must be able to use “skills and facts wisely and appropriately through effective application, analysis, synthesis, and evaluation” (p. 39). The learners’ ability to do this provides evidence (assessment) for stage 2 in the “backward design” curriculum planning.

According to Wiggins & McTighe (2005) transfer by application is not mere rote recall, but application that changes and is modified to a particular situation (p. 41). Application of previous knowledge effectively in a new situation without any effort signifies that understanding is attained. If understanding is attained, the fundamentals of knowledge and skill is inferred. With the correct application, transfer involves considering which knowledge and skill matters and how to adapt. One such definition of transformative learning by Merriam and Bierema (2014) is “essentially a learning process of making meaning of one’s experience” (p. 84). Merriam and Bierema (2014) clarifies that “the individual learner is at the heart of the transformative process” (p. 90). The goal of an educator is to assist students in bringing about a transformation. Enabling transformative learning is essential in the aim of adult education (Merriam and Bierema ,2014., p. 95). Adult students enter into a learning setting that is either a formal or an informal environment (online) to encounter a form of change. This form of change can be learned through engaging in a new profession, new trade, or new skill. Planned curriculum, content-based learning objectives, and learning activities all assist in the delivery of the learning transformation which initiates the student to reflect or act in a new heightened way (Merriam and Bierema ,2014., p. 91).

In my Dental Radiology I- Basics Concepts course, students are taught numerous radiology concepts and techniques. When teaching the concepts and techniques, my intent is to incorporate the students’ previous knowledge into their new knowledge to assist with comprehension. In one laboratory activity students are introduced to the Rinn XCP film holding device system. The XCP film holding device system is used to expose radiographs, and consist of three metal indicator arms, three plastic bite-blocks, and three plastic aiming rings. Students

must learn to assemble three separate assemblies using one indicator arm, one bite-block and one aiming ring. There is an anterior assembly for anterior exposures, a posterior assembly for posterior exposures and a bitewing assembly for bitewing exposures. When students are assembling the XCPs, they are asked to identify and relate each assembly to something of familiarity. Familiar old knowledge triggers construction, and connection of new knowledge. Effective learning necessitates a balanced focus on students' construction and purpose of knowledge along with drills, and learning must be conducted by generalized principles (Wiggins & McTighe, 2011). The consensus of my current class of millennials and Generation Y students have all identified the anterior XCP assembly as a "selfie" stick, and the bitewing assembly as the wings of an airplane. Assembling the three sets of XCP is similar to putting the pieces of a puzzle together, and once the students have recognized how to assemble two parts of the puzzle together, then it becomes easier to assemble the last part of the remaining three pieces.

Conclusion

Transformative learning infers that if understanding has been attained in previous experiences by the learner, then the learner can apply, analyze, synthesize and evaluate that new skill, and also successfully apply the skill to other scenarios. Backward design curriculum planning is aimed at achieving higher learning comprehension. In attaining learners' comprehension, educators must assist learners by first outlining the specific desired results, with measurable evidence guided by applicable learning instructions. The goal of backward design is to prioritize acceptable evidence that would prove that understanding has occurred and the desired results has been achieved. As an educator, I had to redirect my teaching technique and focus less on content-focused and coverage base design. In applying a new approach to

curriculum design, my plan is to include a more results-oriented teaching as employed in the backward design.

References

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