

Digital Dentistry and Teaching Operative Dentistry to a new generation

Integrating operative dentistry into the digital world

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This is today.....



How did I get here?

A little about me and my school

- Born in 1986- making me a Millennial
- I always hated school
- Graduated Dental School in 2013
- Touro College of Dental Medicine opened in 2016
 - I began as a part time employee
- Became course director of DAO in 2017
- Became course director of Operative dentistry in 2018



DAO and my OSCE challenge

- You need a lot of teeth and a lot of time
 - The regulations about using real teeth are tedious
 - Teeth are fragile
 - Teeth break
 - Teeth are limited
 - Every student needs to see the same tooth
 - Teeth need to be handled with care



Digital Dentistry

- At Touro College of Dental Medicine (TCDM) digital dental technology is paramount to achieve the desired educational goals.



Think in the box

- We had a selection of teeth but we could not use them
 - What if they break mid exam?
 - So many students need to rotate through the exam
- BUT what if we scanned them and printed them for use...



What did we actually print

- A few sets of each tooth to have student use in study sessions
 - Some at 100% size
 - Some at 400%
 - Allowed for better identification for anatomical differences
 - Cusp of Carabelli
 - Mesial groove on a Max first premolar
- 4 set of test teeth that are NOT seen by students until the day of the OSCE
 - We were able to give the whole exam in 45 minutes to over 100 students all at the same time

How did we do it?

- With very little cost to the school*****
- We used the 3-shape TRIOS intraoral scanner to create a three-dimensional model of previously extracted natural teeth.
- The three-dimensional model was then converted into an STL file to be imported into a print preparation software
 - At TCDM we use Formlabs PreForm software
- Once the file is properly prepared it is sent to a Formlabs Form 2 Printer to be printed

Tell me more....

- SLA Printer (can be done a DLP Printer)
- Liquid resin
- 5-10 dollars for each big tooth
- 4-5 hours to print but can be quicker



How does this help with Operative??

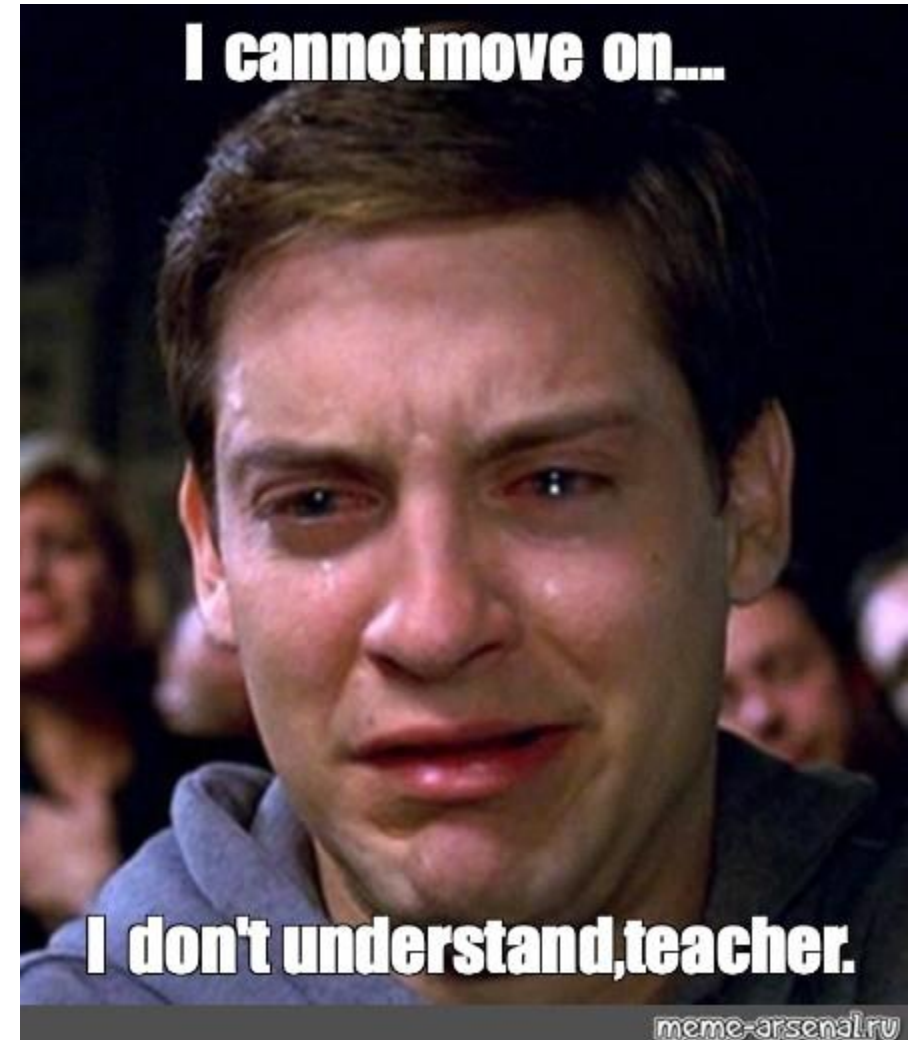
Teaching Operative and its challenges

- Students not understanding terms
 - What is the axial wall?
- Students not understanding the outcome of a particular preparation
 - What should it look like?
- The powerpoint, the images, the lectures, the videos all were not enough
- Where was I going wrong??



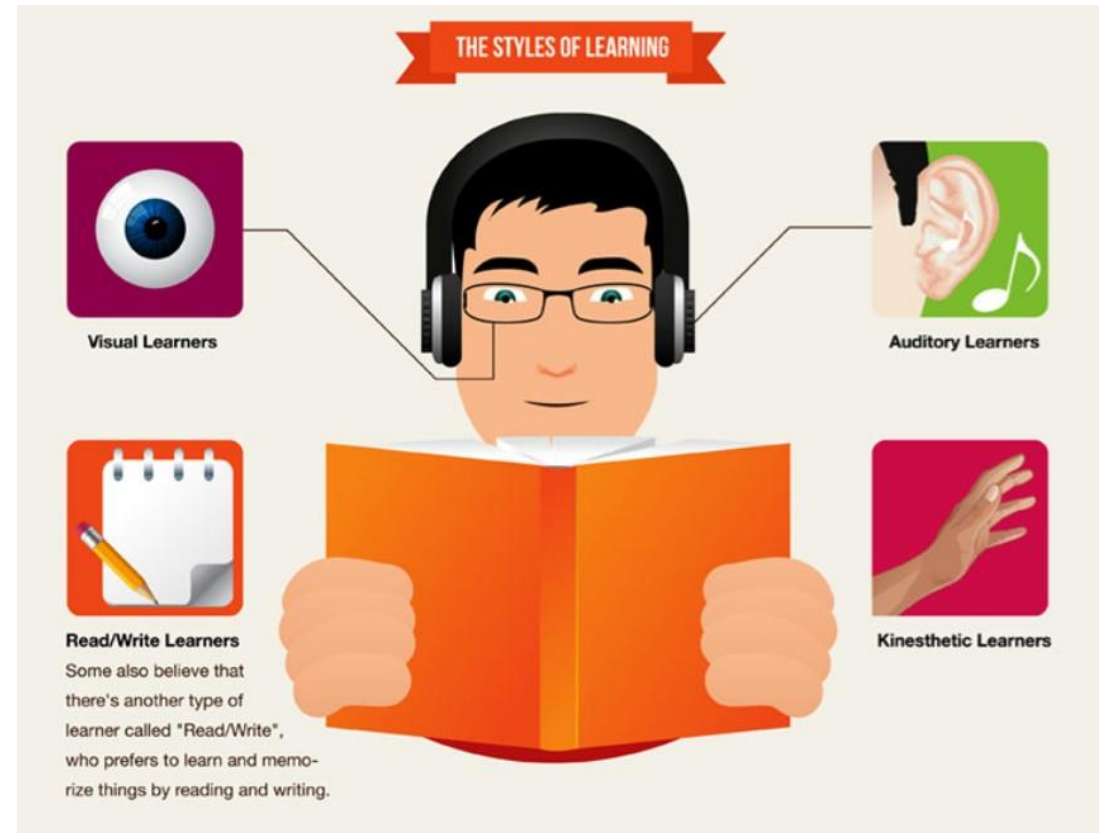
How to accommodate everyone in the room

- Powerpoints with both descriptions and images
- Simlab exercises with rubrics and step by step instructions
- Video tutorials
- But it still was not enough....



Diff types of learners

- Auditory
- Visual
- Tactile/Kinesthetic



Understanding your type of learning style can be beneficial for several reasons:

- 1 Remember information the first time you hear it, reducing the amount of time you need to absorb it
- 2 Figure out which are the best and most efficient ways for you to study
- 3 Understand which types of tests you may excel on, and which may be more difficult

<https://chicagorealtor.com/whats-learning-style/>

Career Planning

Preparing for School

Paying for School

Self-Assessments

What Kind of Student Are You?

What's Your Learning Style?

Which Study Habits Can You Improve?

How Strong Is Your Character?

Questions From Students

My Smart Borrowing

STUDENTS

PARENTS

COUNSELORS

Self-Assessments



Find out more about yourself.

Use these interactive self-assessments to discover what you're good at and where you may have room for improvement. Identify the things that interest you and get some ideas about careers to explore.

Based on what you learn about yourself, you can pursue educational and career

goals that bring long-term satisfaction.

▶ What Kind of Student Are You?

Rate yourself on your study habits and in-class behaviors to see where you rank as a student.

▶ What's Your Learning Style?

Discover your learning style and find out how it influences the way you understand information and solve problems.

▶ Which Study Habits Can You Improve?

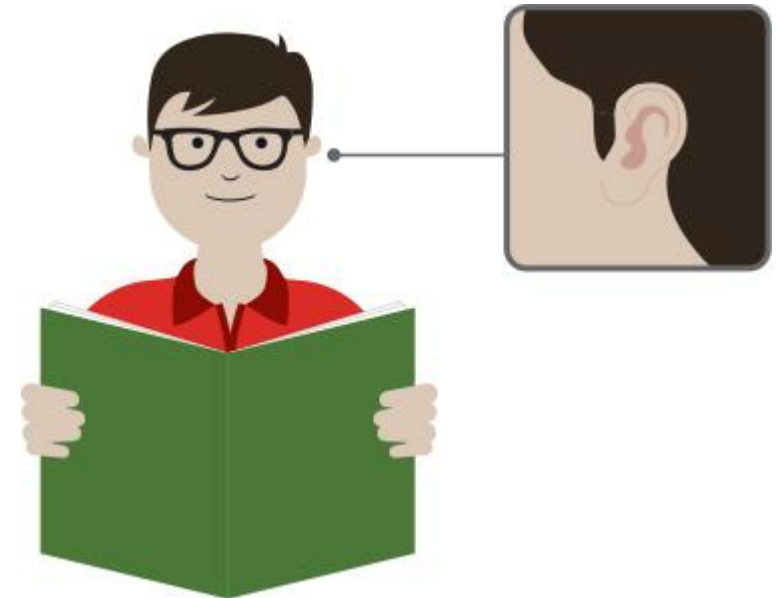
Start by identifying the strengths and weaknesses in your current study habits.

▶ How Strong Is Your Character?

Select the character traits that best define you and get some tips for building stronger character.

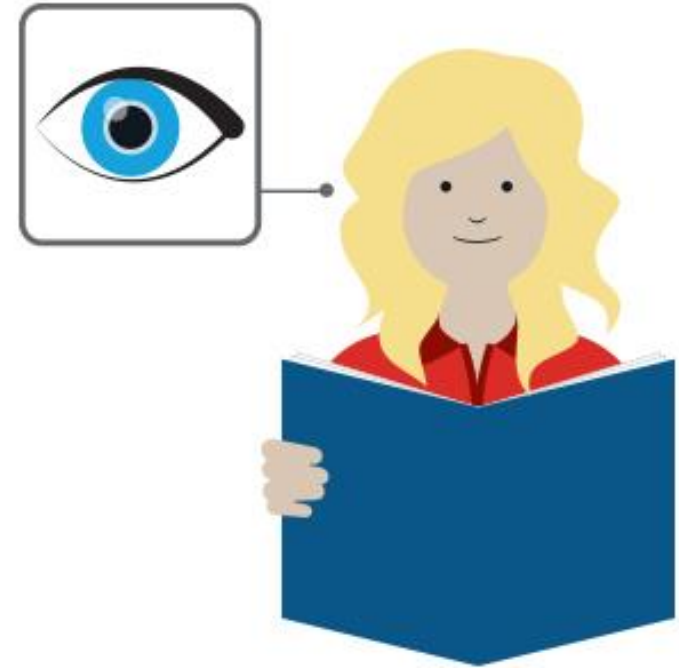
Auditory Learner

- This is our straight forward student
- If your student is an auditory learner, they will learn by hearing and listening.
- They understand and remember things they have heard.
- They store information by the way it sounds, and they have an easier time understanding spoken instructions than written ones.



Visual Learner

- They learn by reading or seeing pictures
- They understand and remember things by sight
- They can picture what you are learning in your head, and they learn best by using methods that are primarily visual.
- You like to see what you are learning.



Tactile Learner

- They learn by touching and doing.
- They understand and remember things through physical movement.
- They are a "hands-on" learner who prefers to touch, move, build, or draw what they learn, and they tend to learn better when some type of physical activity is involved.
- They need to be active and take frequent breaks, they often speak with their hands and with gestures, and they may have difficulty sitting still.



Our Consumer- The Gen Zer

- First generation to have grown up with access to the internet
- They are called “digital natives,” even if not digitally literate
- A Gen Zer will spend more time on electronic devices and less time reading books



Integrate into Operative

- What if I took everything from DAO and integrated it somehow into my Operative course?
- What if I could show students a 3D scan of those preparations?
- What if I can then print teeth with ideal preps?
- What if, as an educator, I was able to cater to all my learners??

The Goal

- Every preparation is prepared and approved by the Course Director
- The tooth is then scanned in two ways
 - Out of the mouth
 - In the mouth
- Every preparation is printed in 100% real size.
 - This allows for the student to see what the actual end product should look like
- BUT also, blown up 400%
 - This allows for dialogue and testing of the information
- Students have a folder on their desktop of every preparation
 - This allows them to be better prepared for SimLab
- Every student should be able to learn in the way they learn best

VIEW
s PC > Student R/O Data (R:) > 009 Preclinical Spring 2021 > PCOD II Spring 2021

Name	Date modified	Type
▶ #3 MO-OL In The Mouth (1)	2/24/2021 9:41 AM	Different
▶ #3 MO-OL Out Of Mouth (1)	2/24/2021 9:41 AM	Different
▶ #4 DO In The Mouth	3/3/2021 1:49 PM	Different
▶ #4 DO Out Of Mouth	3/3/2021 1:49 PM	Different
▶ #5 DO In The Mouth	3/3/2021 1:49 PM	Different
▶ #5 DO Out Of Mouth	3/3/2021 1:50 PM	Different
▶ #14 MO-OL In The Mouth	2/24/2021 8:11 AM	Different
▶ #14 MO-OL Out Of Mouth	2/24/2021 8:11 AM	Different
▶ #19 DO Out of Mouth	2/10/2021 12:51 PM	Different
▶ #19 DO In Mouth	2/10/2021 12:51 PM	Different
▶ #30 DO In Mouth	2/11/2021 12:23 PM	Different
▶ #30 DO Out Of Mouth	2/11/2021 12:23 PM	Different

Thank you!
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