

R546 Task II: Curriculum Brainstorm

This activity was performed with the intention of using the following techniques in an undergraduate basic human anatomy course with both lecture and laboratory components. As a current associate instructor and a future anatomy faculty member, these teaching methods will be invaluable as I continue to try to negotiate the tricky path of presenting anatomy in both clear, scientific facts and in a creative, exciting manner.

Step 1: Rough individual brainstorm

- Case studies
- Peer teaching
- Dissection
- Make models (clay, wire)
- Make website
- Make online animations
- Draw pictures
- Draw concept maps and flowcharts
- Team based learning
- Problem based learning
- Student presentations
- Student papers on clinical correlations
- Live models for surface anatomy
- Lecture
- JITT
- Students make flashcards
- Students draw schematics
- Jeopardy
- Songs
- Mnemonics
- Human observation (ex: muscle function)
- Make short, narrated lab dissection videos
- Dissection reports
- Dissection drawings
- Cakewalks – show off dissections
- Flipbooks (ex: nerve pathways)
- Computer dissections
- Online animations
- YouTube videos
- Food (ex: cakeballs for eyeball)
- Patient simulations
- Surgical simulations
- Group discussion
- Plastic gloves to show arteries and nerves of hand
- Draw on each other
- Make model of dural venous sinuses
- Put together a skeleton and then overlay the other structures (muscles, blood vessels, etc.) on top of it to finish the class with one big human
- Talk about historical concepts in anatomy (humors, blood-letting, etc.)
- Muddiest point
- Think pair share
- Metaphors, analogies
- Hypothetical situations
- Money question (ex: Dr. Canby)
- List of resources for students to get
- Physicians come and talk about how anatomy is useful to them (ex: interventional radiologist)
- List that gradually gets added to through the class, to finish with a huge document that summarizes everything
- Tables/charts to group info (ex: pharyngeal arches)
- Tell a story!

Step 2: Categorized, R546-influenced brainstorm

KEY: Techniques already tried or observed marked with “*”

Amount of instructor preparation from 1 (very low) to 5 (very high)

Amount of class time involved from 1 (very low) to 5 (very high)

| General category | Technique |
|--------------------------------|--|
| Critical thinking | <ul style="list-style-type: none"> • Case studies* 5 5 • Dissection* 3 5 • Concept maps, Flowcharts* 2 3 • Problem-based learning* 5 4 • Student papers/presentations (anatomy, clinical) 1 4 • Lecture * 5 5 • Dissection reports 1 3 • Resource list 5 1 • Muddiest point* 1 1 |
| Additions to Critical thinking | <ul style="list-style-type: none"> • Internship/job reflection 2 2 • Attend conference* 1 1 • Plus-Minus-Learn 1 1 • Know-Want to know-Learn* 1 2 • Issue cards and discuss 2 4 • Venn diagram 2 2 • Pruning the tree (concept and students ask yes no questions) 2 3 |
| Creativity | <ul style="list-style-type: none"> • Make models (clay, wire)* 4 3 • Make website, online animations 5 2 • Draw pictures* 2 3 • Flashcards* 3 3 • Songs 5 2 • Mnemonics* 2 2 • Narrated lab dissection videos* 2 2 • Dissection drawings 4 3 • YouTube videos 4 3 • Draw on humans, plastic gloves (vessels of hand)* 1 4 • Flipbook (nerve pathways) 5 3 • Food modeling (cakeballs for eyeballs) 4 4 • Metaphors, Analogies* 1 2 • Tables/Charts to group info* 4 3 • Tell a story* 4 2 |
| Additions to Creativity | <ul style="list-style-type: none"> • Free writing 2 4 • Organ role play 3 5 • Make up a new organ and tell function, location, etc. 2 5 • Reverse case studies 3 5 |

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|----------------------------------|---|
| <p>Motivation</p> | <ul style="list-style-type: none"> • Student papers/presentations (anatomy, clinical correlations) 2 5 • Live models (surface anatomy)* 2 4 • JITT 5 5 • Jeopardy-style game* 5 3 • Patient simulations* 5 5 • Surgical simulations* 5 5 • Historical concepts in anatomy (humors, bloodletting) 3 3 • Money question (Dr. Canby)* 2 2 • Physicians come and talk about how anatomy is useful to them (ex: interventional radiologist) 3 4 |
| <p>Additions to Motivation</p> | <ul style="list-style-type: none"> • Attend BodyWorlds exhibit* 5 5 • Scavenger hunt 5 4 • Blog 1 3 • Write down the explanation as if you were talking to a 10 year old that asked you about something 1 3 • Talking chips 1 1 |
| <p>Collaboration</p> | <ul style="list-style-type: none"> • Peer mentoring* 2 5 • Team-based learning* 5 5 • Human observation (muscle function)* 2 4 • Group dissection* 3 5 • Put together a skeleton and then overlay the other structures on top of it to finish the class with one big human 4 5 • Think-Pair-Share* 1 2 |
| <p>Addition to Collaboration</p> | <ul style="list-style-type: none"> • Poster sessions 3 4 • Planted questions 3 2 • Morphological synthesis 3 3 • Index match cards 2 4 • Surface and deep questions 2 3 • Near-peer teaching (ex: 2nd year teaches 1st) 2 3 • Reciprocal peer teaching* 2 4 • Photocopy notes to show off (random selection each class) 1 1 |

Step 3: Reflections on brainstorm and its evolution via R546

This activity is going to help me make great strides as an engaging instructor in anatomy. I was concerned initially because many people see anatomy (as well as most of the other sciences such as chemistry, kinesiology, etc.) as a topic that is much too scientific to allow for the more creative, student-driven instructional techniques and class projects. However, it all rests on whether the instructor buys into the idea or not, and if they are deliberate in how these techniques are implemented. I have been in classes where the instructor attempts to run a problem- or team-based learning exercise but then prior to beginning states to the class, “Well, the curriculum overseers say we have to do this. I am not sure why, but we’ve just got to do it to make them happy.” This is extremely discouraging to everyone involved and may even lead to some students dismissing future active learning techniques without giving them a fair trial.

I admit that at points during this brainstorming activity, I doubted the effectiveness of some strategies. But with careful consideration of both the resources available and the content I want to convey, all of the above critical thinking, creativity, motivational, and collaborative techniques can be used in my future anatomy classrooms. Many of the strategies fit into more than one category and when that occurred I tried to categorize by the most dominant form that I saw in the technique. I was shocked, given my previous statements regarding the standard viewing of anatomy as a rigid scientific subject with slim amounts of wiggle room, to find how many techniques fit into the creativity category. I expected many more in the critical thinking and collaborative categories because those are easier to reconcile with the traditional anatomy classroom, but was pleasantly surprised by how the revisions based upon my experiences in R546 added to the creativity and motivational categories.

The discussions and myriad of activities in R546 have been very beneficial to both this curriculum brainstorm and my learning of the content in the class. I believe this is mostly due to the fact that I am seeing these activities from a student point of view, rather than trying to project the ideas onto students from an instructor point of view. Some activities that I may previously have doubted the effectiveness of (for example, Plus-Minus-Learn) I now see are very valuable in the students’ eyes. It students the opportunity to give the instructor feedback and this may lead to developing a more vested interest in the course and the content within.

But just because a future instructor recognizes the worth of a critical thinking, creative, motivational, or collaborative technique does not mean that they will make use of it in their classroom. This is why I prioritized my activities each by two numbers: the first denotes the amount of instructor preparation required and the second shows the amount of class time that would be devoted to the activity. This will make me more likely to use this list as a quick reference if, for example, I know that I want to motivate students but I do not have a large amount of class time to do so. In that instance I may select to do a “money question,” where I pose a question to the class and the reward for the first correct answer is a one dollar bill. I had a histology professor that did this and it was always an exciting time when he used this technique. Ultimately that is the feeling I want to instill in my students: an excitement for the fascinating anatomy content of the day liberally spiced with active learning methods that increase their creativity, the motivation with which they approach their studies, and a sense of camaraderie between everybody involved in the class.