

Assignment 3: Exploring Your Area - clockett6

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The topic I would like to create a project around is health care education. This can take the form of education for patients, doctors, medical students, and others involved in the medical community. My previous topic of interest was to create a website that curates a patient educational materials for conditions that they have been diagnosed for and provides search capabilities (similar to the website that Keith Brunson created). (Brunson, 2017). Physicians could then an app to send that link to the patient. After doing some research, I discovered that MedlinePlus (<https://medlineplus.gov>) in conjunction with NIH (<https://www.nhlbi.nih.gov/health-topics>) has a fabulous repository of information that covers everything including most of the topics I intended to cover such as dietary considerations and treatments. I would have liked to see more information on patient outcomes for treatments, and some of the topics have that information available as links to other websites.

Currently, I'm considering a project that involves organ simulation using virtual reality techniques to educate the user on different diseases that can potentially affect the organ and display some of the characteristics associated with that organ that can change as a result of the disease including blood work, imaging, and pathology information. Alternately, the tool could identify some of the physiology and anatomy of the organ and show the effects of disease, medications, or other conditions on some of the physiological pathways and running animations where appropriate. There were websites from folks who have developed a number of tools for organ simulation such as <https://3d4medical.com/> which give basic lessons on anatomy and physiology and provided advanced features. This company had a variety of tools and one was particularly interesting because it included tools for modifying the heart including adding growths to it and modulating the heart rate using the slider <https://3d4medical.com/apps/complete-heart>. It also provides a dissection mode so that it can be visualized in cross section from a variety of angles. It also has a video library that covers a variety of heart conditions and treatments. Amon their other applications, they provide detailed programs for anatomy education, orthopedic education, and muscle education.

Something that is missing from that that I think would be interesting to create would be a way to model how different diseases, medications, or structural or traumatic conditions change the physiology of the organ and then provide a visualization or animation based on the before and after of the change. The project would need to select an appropriate organ where specific and well known information is known about the impact of these factors on physiological processes.

References

3d4medical. (2018). The Complete Heart product. Retrieved from <https://3d4medical.com/apps/complete-heart>.

Brunson, K. (2017). EdTech Browser. https://github.gatech.edu/pages/kbrunson6/edtech_projects/?q=&idx=production_projects&p=6&dFR%5Bterm%5D%5B0%5D=F15#/