USING DRAWING AS AN ACTIVE ENGAGEMENT TOOL TO EMPOWER LEARNERS AND PROMOTE TEACHING OF HEALTH TOPICS

Arianna Selagea¹, Leah Lebowicz¹, Samantha Bond¹, John Daugherty¹

University of Illinois at Chicago¹, Northwestern University Pritzker School of Law², Justice & Empowerment Initiatives³

ABSTRACT

Community members in Lagos, Nigeria are not able to correctly define blood pressure, its causes, and the impact certain values have upon health.^{1,10} Community Health Educators (CHEs) are volunteers trained through Northwestern's current Access to Health initiative to educate low-literacy community members who do not have access to vital health information.¹ Utilizing an active engagement method can improve learning and retention of information by the CHEs and similar audiences.^{2,3} An example of this is drawing, which can help educate and empower CHEs to teach low-literacy community members health topics.

INTRODUCTION

Because of particular barriers to health care and the lack of proper health education, many community members of Lagos, Nigeria suffer from diseases because they do not know how to prevent their development, contraction and/or spread.^{1,9} Hypertension is one such disease that may remain undetected until too late.⁴ By educating the community of Lagos of the importance of taking their blood pressure and interpreting values correctly, members are encouraged to seek proper help to make the disease's management more successful.¹

At the basis of understanding hypertension is knowing the anatomy, which can be learned most effectively using an active engagement method like drawing.^{2,8} Drawing can be applied in all settings and has been found to increase knowledge gain, retention, and problem-solving skills.³ Viewing and following the process of drawing is beneficial in understanding how structures relate and function.⁵ Providing a partially drawn base image to complete also aids learning by reducing cognitive load and increasing accuracy of the final image.¹¹ By incorporating a warm-up exercise and simple drawing steps in a video, CHEs and similar populations can learn how to draw health concepts and become empowered to educate lower-literacy community members by using drawing.

MATERIALS & METHODS

This study utilized a qualitative research design. The materials and methods below were carried out to help answer the question: **"How can drawing as a visualization method be used as a tool to promote engagement in health education and empower learners to teach?"**

Drawing has been used for education in high-literacy settings, or only as an assessment tool in low-literacy populations. This project aimed to bridge the research gap by using an easy drawing method to educate audiences of mixed and low-literacies, and provide a tool that can be used by the target audience to teach others information more accurately and effectively. This entailed incorporating a drawing exercise to help learners "warm up" and become comfortable with making strokes before diving into learning.

Curriculum and visualizations for the Access to Health initiative are to be housed within a web and mobile application. With this in mind and the findings of various educational studies as basis, short videos were chosen as the appropriate and accessible deliverable to be hosted within the application. This would allow fluid scaffolding of drawing steps while discussing blood pressure and related concepts in an engaging way, as well as reducing cognitive overload and enhancing learning and memory.

Three storyboards depicting the visual content and flow of information in the videos were created using InDesign and Photoshop. Due to time constraints, only storyboards 1 and 3 were recorded into videos using an iPhone, then voiced over and edited in Adobe Premiere Pro before being uploaded to a Vimeo account. All pre-drawn visual assets used in the videos were created in Illustrator.

RESULTS

The videos were viewed by the committee and feedback given included slowing down drawing steps, giving more attention to an example of a Nigerian having their blood pressure measured, showing positive habits that lower blood pressure instead of only practices to avoid, and splitting Blood Pressure into two separate videos along with The Heart and Blood Flow storyboard, in the event that it is developed into a video.

CONCLUSIONS

Overall evaluation of the videos utilizing drawing (and second storyboard not made into a video) by the committee was positive and deemed to be effective in teaching populations like the CHEs about the heart, its general anatomy, the way it functions, the phases of the heart (diastole and systole), and blood pressure. Anticipation was expressed for seeing the final product implemented in future endeavors involving the education of CHEs, as well as other populations like them across different areas of health education and communication.

REFERENCES

- [1] Afoaku M, Bhatia N, Galvin S, Greenhut A, Peeva G, Maitland A, ... Tariq F. Access to Health Research Trip Report March 2016. 2016.
- [2] Fagan J, & Sturm S. (2015). "Drawing in the sand" as a tool for teaching coastal geography. *Journal of Geography in Higher Education*. 2015; 39(3): 478-484.
- [3] Heideman PD, Flores KA, Sevier LM, & Trouton KE. Effectiveness and adoption of a drawing-to-learn study tool for recall and problem solving: Minute sketches with folded lists. *CBE Life Sciences Education*. 2017; 16(2): ar28.
- [4] High Blood Pressure Signs and Symptoms. (2014, July 7). Retrieved from https://www.cdc.gov/bloodpressure/signs_symptoms.htm
- [5] Kenes C. In defense of the anatomic blackboard drawing. *Surgical and Radiologic Anatomy*. 1992; 14(3): 193-194.
- [6] Nye, LS. The mind's eye-biomedical visualization: The most powerful tool in science. *Biochemistry and Molecular Biology Education*. 2004; 32(2): 123-131.
- [7] Oke, DA, & Bandele, EO. Misconceptions of hypertension. *Journal of the National Medical Association*. 2004; 96(9): 1221-1224.
- [8] Shulman GM, Luechauer DL. Creating empowered learners: Merging content and process. *Annual Lilly Conference*. 1991.
- [9] Singleton K, & Krause EM. Understanding cultural and linguistic barriers to health literacy. *The Online Journal of Issues in Nursing*. 2009; 14(3).
- [10] Galvin S, Meyer ER, & Sorensen J. (2018, April 30). Personal Interview.
- [11] Fiorella L, & Zhang Q. Drawing boundary conditions for learning by drawing. *Educational Psychology Review*. 2018; 20: 1115-1137.