Teaching Brain and Behavior with H5P Interactive Tools: Online MSW Students' Perceptions and Preferences

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Abstract

Little is known about online graduate students' perceptions and preferences regarding interactive HTML5 package (H5P) content. Graduate social work students (N=26) in an online Brain and Behavior course were surveyed about H5P activities embedded in the course's learning management system (LMS). More students preferred complex H5P activities to simpler ones. Students also rated a complex activity as more helpful for social work practice than simple activities. Results suggest instructors should consider learning how to use more complex H5P activity types when creating interactive content for their courses.

Introduction

Neuroscience is a multidisciplinary branch of biology that includes the scientific study of neuroanatomy and neurophysiology (Black & Conway, 2018). Despite the social work profession's emphasis on the biopsychosocial perspective, which includes a biological component, students often enter their graduate social work programs without a foundational background in anatomy and physiology (A&P). As a result, these students often experience heightened anxiety around the amount and complexity of the content. The HTML5 package (H5P) e-authoring tool can be used to develop interactive HTML5 content for an LMS (H5P, 2017). Research suggests embedding interactive low-stakes HTML5 activities that can be repeated as often as needed can help to reduce the overwhelming nature of mastering unfamiliar A&P material (Rekhari & Sinnayah, 2018). Little is known about student preferences and perceptions of H5P content. A cross-sectional survey was administered to elicit information about online MSW students' preferences for and perceptions of different types of H5P activities. Complex H5P activities were defined as those that included multiple H5P activity types (e.g., combining interactive videos with image sliders and various question formats) vs single-activity types. We questioned what types of H5P activities students would most and least prefer and the type of activity they would consider most helpful for social work practice.

Methods and Materials

SOCW 5315: Brain and Behavior is an online, asynchronous advanced practice course taught in the Master of Social Work program at UTA, includes foundational neuroanatomy and neurophysiology concepts. At the mid-semester point, 52 MSW students (23% male) enrolled in Spring 2022 were invited to participate in an online survey delivered via the multi-poll feature of H5P.com embedded in the Canvas Learning Management System. Survey items included: "Of the H5P activities we completed in the first half of this course, what is your favorite activity?" and, "of the H5P activities we completed in the first half of this course, which one do you think will most help you in your social work practice?" Students could choose only one activity from 13 H5P activities embedded in the first half of the course (See Figures 1-13). H5P activities were then classified according to types used in the course: "image hotspots," "drag the words," "word cloud," "interactive book" and "course presentation." Activities with more than one type were combined and averaged. Institutional Review Board approval was not required because the survey was conducted for course evaluation purposes. Data were analyzed descriptively.

Results

Of the students (N=26; 50%) responding to the survey, 38.46% rated the "Make a Mad, Mad, Mad Neuron" exercise as their favorite H5P activity (based on the interactive game, "Make a Mad, Mad, Mad Neuron," Genetic Science Learning Center [GLSC], n. d.). The second most highly rated activity was "Lick Your Rat Pups" (23.08%; GLSC, n. d.). See Figure 14. The interactive book was the most preferred type (38.46%; Figure 17). The least favorite activity type was a drag the words activity (34.62%; see Figure 16). An image hotspot activity embedded in a multi-part assignment was rated as most helpful for social work practice (42.31%; Figure 16).

Figure 17
Favorite H5P Activity Types
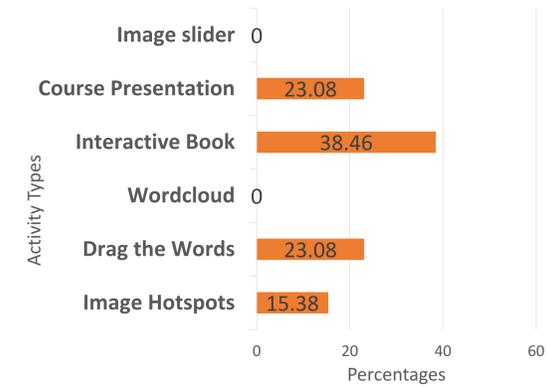
Discussion

Our findings suggested that students in a graduate Brain and Behavior course actually preferred complex H5P activities to simpler ones. The highest-rated H5P activity was one of the most complex types: the interactive book. These types of H5P activities allow for multiple H5P types, including embedded videos, image sliders, multiple-choice, fill-in-the-blank, and True/False questions. Of all of the H5P activities in the SOCW 5315 Brain and Behavior course, these were the most difficult for students. Students least preferred simpler activities. The activity rated as most helpful for practice consisted of a single H5P activity embedded in a multi-part assignment requiring students to apply what they had learned in the H5P hotspot activity to design a room for a client with Alzheimer's dementia. In addition to the H5P exercise, students had to use an external floor plan and home design software app. Students who prefer complex activities likely find them more challenging and are less likely to simply view them as busywork. Although more difficult and time-consuming to design, instructors should consider increasing the level of challenge when using H5P activities in their courses by using more complex H5P activities like course presentations, interactive videos, branching scenarios, and interactive books. Limitations included the small sample size and response rate. Future studies should be conducted with larger sample sizes and over longer time periods.

References

Black, J. M., & Conway, A. (2018). The utility of neuroscience for social work research and practice with children and adolescents. *Journal of the Society for Social Work and Research, 9*(2), 261-284. https://doi.org/10.1086/698166

Genetic Science Learning Center, University of Utah (n. d.). *Lick your rat pups.* https://learn.genetics.utah.edu/content/epigenetics/rats/

Genetic Science Learning Center, University of Utah (n. d.). *Make a mad, mad, mad neuron.* https://learn.genetics.utah.edu/content/neuroscience/madneuron/

H5P. (2017). H5P. Retrieved from https://h5p.org/

Rekhari, S., & Sinnayah, P. (2018). H5P and innovation in anatomy and physiology teaching. In *Research and development in higher education:[re]valuing higher education: volume 41: refereed papers from the 41st HERDSA Annual International Conference. 2-5 July 2018, Convention Centre, Adelaide* (Vol. 41, pp. 191-205). Higher Education Research and Development Society of Australasia. https://vuir.vu.edu.au/37400/1/Rekhari_et_al_HERDSA2018.pdf
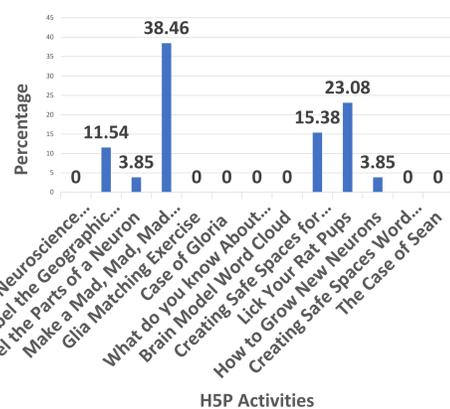
Figure 14
Favorite H5P Activity
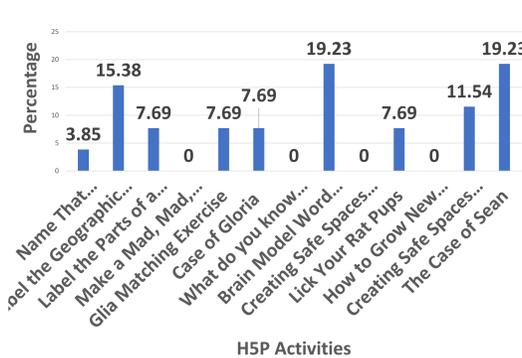

Figure 15
Least Favorite H5P Activity

Figure 16
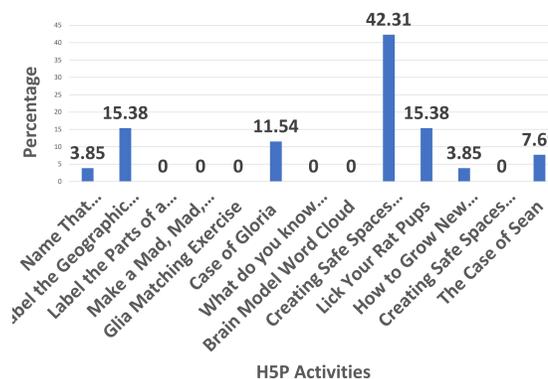*Most Helpful H5P Activity for Social Work Practice*

Figure 1
Name That Neuroscience Milestone (drag the words)

Figure 2
Label the Geographic Landmarks of the Brain (drag the words)
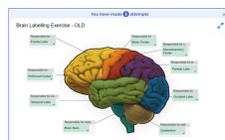
Figure 3
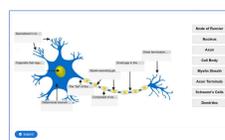*Label the Parts of a Neuron (drag the words)*

Figure 4
"Make a Mad, Mad, Mad, Neuron" Exercise (interactive book)

Figure 5
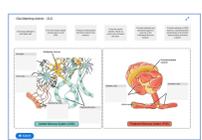*Glia Matching Exercise (drag the words)*

Figure 6
Case of Gloria (image slider)

Figure 7
What Do You Know About the Nervous System? (drag the words)

Figure 8
Brain Model Word Cloud (word cloud)

Figure 9
Creating Safe Spaces for Persons with Alzheimer's Disease (image hotspot)

Figure 10
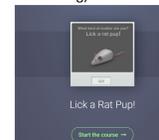*Lick Your Rat Pup (interactive video with branching)*

Figure 11
How to Grow New Neurons (drag the words)

Figure 12.
Creating Safe Spaces Word Cloud (word cloud)

Figure 13
The Case of Sean (image slider)