
Are you Awake? Preventing Zoom-fatigue in Online Anatomy & Physiology Courses

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Abstract

Anatomy and physiology lectures, traditionally held face-to-face at Florida Gulf Coast University, moved overnight to an online environment during the Covid-19 pandemic. Reflecting back on our teaching experience, a few goals to successful Zoom-based teaching emerged: make meaningful connections with the students, stay connected with students by using questions during lectures, and enjoy this new connection throughout the semester and beyond. This article discusses one strategy employed to stay connected to students during virtual, Zoom-based teaching: the use of “Are you awake?” questions. The questions were written to guide students in their review of material just learned. We felt that this method resulted in scaffolding the students’ experience, preventing unnecessary lecturing, and reducing Zoom-fatigue. By emphasizing a process of regularly “checking in” with the student, a further relationship was established between the course faculty and students as well as among the students. Anecdotal evidence of this question technique is shared, with student feedback being positive. Based on our experience, emotional presence in the online environment correlates to student success. <https://doi.org/10.21692/haps.2021.017>

Key words: Anatomy and Physiology, online learning, guiding questions, Zoom-fatigue, student engagement

Introduction

As educators, we often discuss best practices of teaching, including student engagement. Traditionally, when teaching classes occurred primarily in-person, educators were tasked with the challenge of keeping students engaged during class (McCormick et al. 2013). Connecting with students virtually is even more challenging due to lack of proximity. Considerable instructor effort is required to develop and deliver online classes. A central theme can be identified: the connections for students with faculty as well as among one another should be just as rewarding in virtual courses as in face-to-face learning environments (King 2020).

In March 2020, our world was confronted with an unprecedented and unwelcome challenge as a result of the pandemic. Classes that were traditionally taught face-to-face at Florida Gulf Coast University (FGCU) moved overnight to online. When signing up for the Spring 2020 semester, FGCU health professions majors did not expect to take a content-heavy science course such as anatomy & physiology (A&P) virtually. Typically, our undergraduate A&P classes form the foundation of future health-related programs by providing the groundwork upon which further knowledge is built. Despite switching mid-semester to virtual courses, our students deserved just as rigorous a format as in the live classroom, making either experience just as relevant.

The faculty at FGCU chose to teach the online lecture component of A&P synchronously during the 2020/2021 academic year, emulating the more traditional lecture

format. The issue remained as to how to engage so many students (as many as 96) simultaneously in this virtual lecture environment. Reflecting back on our teaching experience over these past few semesters, we felt that it was essential to make a connection with the students, to stay connected, and to enjoy this new environment for teaching and learning. In order to help form connections and stay connected with so many students at once over Zoom, we started to use a check-in technique called, “Are you Awake?”. This strategy was not intended to imply that students were sleeping during class, but rather formed the basis of a team-based classroom environment in which everyone could work together while reasoning silently (or aloud) with other students and/or with the professor.

Reflection: Our Challenge of Transitioning to Online Lectures

Our FGCU students come from diverse backgrounds: some are prepared for the demands of college and others are still finding their way. Along with general biology and chemistry, A&P I and II classes are among the greatest challenges for critical thinking and quantitative reasoning competencies (Abdullahi and Gannon 2012). We appreciate the rigor demanded by teaching A&P, while we also enjoy the excitement and energy of the classroom. Conveying passion and passing along that energy to each student is our mission. Our experience has been that getting to know our students

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and allowing for a connection at the human level, especially in the virtual environment, allows for greater student success.

We had no previous experience using a strictly online platform. Just like our students, we were anxious and exhausted by the constantly changing situation. Like many other institutions, our instructional policies were ever-changing and evolving. Indeed, we felt very anxious about teaching large A&P lectures over Zoom.

We are used to the noise and excitement that accompanies a big science lecture hall. We had become accustomed to reading students' body language and responding appropriately. After watching a few Zoom tutorials, we could only imagine that the high-energy found in an auditorium would be reduced to multiple muted squares. We certainly hoped that distance learning would not limit the quality of our students' education or the vibrant exchanges that are typical of being in a live classroom. Moreover, we wondered if the virtual environment offered too many possible distractions, resulting in our students being more likely to disengage.

Reflection: Our Challenge of Student Engagement in Online Lectures

Even prior to the Covid-19 pandemic, many students questioned the significance of going to class. We realized that students might be more likely to disengage during virtual instruction, especially as the online environment became the "new normal." One student reflected via email a few months into the pandemic, *"As far as school goes, I can't say I've learned much. I'm used to having a lot of online classes, but I feel like I'm just going through the motions. I just complete the assignments and don't gain much knowledge, nor am interested to. I'm not sure if it's because I'm not motivated, or because this is the first semester where I have not had any in-person classes."*

How terrifying and utterly disappointing to read such an email. Yet another student shared with us that she was attending virtual lectures on her treadmill, but when she was called on, she "woke up!" These confessions led us to wonder about how best to engage students in the online environment. Our solution was to use guiding questions to help students focus and moreover, to prevent fatigue while learning online.

Staying Connected with Questions: Preventing Zoom-fatigue

Students are exposed to questions throughout their school careers: in their textbooks, when completing their homework, and when writing examinations. Moreover, educators ask many questions in the classroom. Teaching by asking questions is not a new technique. Aschner (1961) called the teacher "a professional question maker," claiming that asking questions is one of the basic ways a teacher may stimulate critical thinking. Writing and delivering well-crafted questions may be considered an art-form. Best practices for effective use of questions as a teaching tool may generate discussion, lead to new insights, and promote comprehensive exploration of the subject matter (Tofade et al. 2013).

In the early 2000s, multiple choice questions using audience response systems such as "clickers" became popular, especially in large, university-level science courses (Caldwell 2007). Clicker questions are useful in various ways. They can assess student preparedness, boost attendance, guide thinking, and build confidence in the classroom (Caldwell 2007). Both students and instructors have historically rated the use of clicker questions in the classroom favorably. Beatty (2004) commented, "I have never seen a student doze off during a CCS [classroom communication system]-based class."

Other question-based learning platforms that use a game format are Quizlet (<https://www.quizlet.com>), introduced in 2007, and Kahoot! (<https://kahoot.com>), released in 2013. Both are popular programs used to review students' knowledge—for formative assessment or as a break from traditional classroom activities. Quizlet's flashcard tool provides a contemporary alternative to traditional paper flashcards (Lander, 2016). While Kahoot! can have positive effects on learning performance and classroom dynamics, some challenges include technical problems such as unreliable internet, stressful time-pressure constraints, and difficulty catching up after falling behind (Wang, 2020).

With the sudden move into the virtual arena and with so many students simultaneously attending a Zoom lecture, our faculty created its own question-based system that we called "Are you awake?". The questions were written to guide students in their review of material just learned. We felt that this method resulted in scaffolding the students' experience and knowledge. By emphasizing regularly "checking in" with the students, a further relationship was established between the course faculty and students. Sample questions of the "Are you awake?" method can be found in Table 1.

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Are you awake?

If a response enhances the original stimulus, the system is classified as a _____ feedback system.

- A. neutral
- B. polarized
- C. negative
- D. positive

Are you awake?

People with blood type O _____.

- A. have both A and B antigens on the RBCs
- B. lack both A and B antigens on their RBCs
- C. have neither anti-A nor anti-B circulating antibodies in their plasma
- D. are considered universal recipients

Are you awake?

Which of the following is not a structural classification of joints?

- A. cartilaginous
- B. amphiarthrosis
- C. synovial
- D. fibrous

Are you awake?

During gastric emptying, chyme is released into the duodenum through the _____.

- A. fundus
- B. esophageal hiatus
- C. gallbladder
- D. pyloric sphincter

Table 1. Sample questions used during virtual lectures.

To stay connected to students during virtual teaching, we used these questions approximately every 5-10 minutes during Zoom. A random student's name was called from the roster and asked to read the question as well as all answer choices. Because the student to be called upon could not be predicted, it became apparent that students did not want to "be caught" not paying attention by their peers and faculty. Our experience was that this teaching technique created active engagement and kept all students listening and learning. We experienced incredible peer support that continued to grow, especially after the initial first few classes. Even if the student had chosen the wrong answer, other students would help explain why that choice was incorrect and why another choice might be correct. The "Are you Awake?" method became a good guide to assess student comprehension.

Additionally, this teaching style helped to foster relationships among students and with faculty. We, as faculty, started to get to know our students better and student-student bonds were established that resulted in the formation of outside study groups. As part of the course requirements, students were required to attend the Zoom lectures, but now the students voluntarily turned their cameras on. They stayed "after class" to talk to us and to each other. We felt as though we were learning from each other and making real connections. Participation did not affect the students' grades directly. However, our impression was that, once they realized our virtual lecture was "not a waste of time," they became further engaged and participated more readily.

Being asked questions in an online setting might be very intimidating for some. As educators, we need to have the confidence and finesse to deal with various outcomes when asking students questions during class. Students might not want to be exposed as "not smart" and thus, feel humiliated

in front of their classmates. By promoting kindness, communication, and respect during virtual lecture, we have tried to create meaningful human connections during the past year. Our goal in teaching a large introductory science course was to see all students comfortable, involved, and confident: *we set the tone and overcame the challenges of virtual lecturing during this Covid-19 pandemic.*

Teaching by engaging with questions has become our new favorite tool, actively involving the students and helping to build a bridge between the material that is in front of them (*the material presented*) and what's inside those concepts (*the material applied*). Sometimes, we all need a nudge in the right direction: a daily reminder that if we listen and learn, the answers make sense. It's okay to hesitate, stop, take a moment, and then understand, not just memorize. Then, we continue to shorten the gap—the gap between recognizing versus understanding.

Feedback

As an assessment of student learning, FGCU uses The Student Perception of Instruction (SPoI) survey. The SPoI allowed for evaluation of the extent to which the "Are you Awake?" question technique was a viable strategy of instruction. Qualitative questions on the SPoI survey included:

"Think about how the instructor presented and explained information. Discuss how the teaching was as a whole. Please explain."

"What has the instructor done in class that has helped you learn the course content effectively (e.g. Power Points, demonstrations, exercises, ways to apply concepts, real life examples, videos, etc.)? Please explain."

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The SPol survey feedback was mostly positive. In response to the above questions, one student wrote, *"I thought the teaching was great, although I hate being in a class that the teacher calls on you randomly, I learned to like it because it forced me to stay engaged especially since this class is online. I always felt like [the instructor] would be there if I needed her and making mistakes in class was ok. I was in a class in high school and anytime I didn't know the answer my teacher would make me feel so stupid, but that was never the case with this instructor. She would go through the question with the student to make sure they understood the correct answer and never made anyone feel embarrassed or humiliated."*

Another student expressed, *"The 'Are You Awake' questions that appear after new information was presented were definitely a major help in reassuring an understanding of new material. I really liked how [the instructor] had us participate so much. It helped me form a relationship with her and the other students in my class."* Another noted, *"She [the instructor] used her powerpoint to teach us with questions thrown in to ensure we were engaged. She kept us engaged the entire time by allowing us to share our answers with each other and her."*

Was everything perfect? Absolutely not. We feared that we would not be able to meet the needs of so many students. Throughout the day, internet connections would sometimes fail, including our own. In the midst of all the adversity, we learned how to be better listeners and better communicators. Students told us, *"Covid made a lot of things difficult."* Throughout the semester, students would tell us that they were frustrated: *"Zoom is hard!"* or *"I'm tired of Zoom."* Sometimes, we felt like auctioneers trying to get a student to engage. One student wrote on the SPol, *"The instructor wasted time by calling on people and no one would know the answer and she would just sit there until someone said something. It would have been a lot better if she just taught her slides."*

Somehow, we persevered, and we learned how to build trust in a virtual classroom. Educators and students alike derived a sense of purpose and fulfillment in their work. We were still able to see our students grow, take chances, and mature. One student wrote on the SPol, *"Zoom was hard, but with the circumstances and teaching it was good!"*

Conclusion

Teaching is a daily reminder that educators are part of a rewarding journey filled with engaging students and their adventures. Did we learn from the pandemic? We certainly hope so. This pandemic and the forced switch from face-to-face courses to virtual courses has further demonstrated that there is no single right way to teach, but what is important is the satisfaction that comes every semester with the opportunity of creating brand-new academic relationships. These connections are perhaps the most exciting aspect of higher-level learning.

When given the option to return back to live teaching this summer, we did! As educators, we might even be more in-tune to our students now more than ever. We still used this "Are you Awake?" question method over the summer, but we also could read body language and switch gears to another teaching and learning method part-way through class. On a SPol survey from the summer sessions, one student commented, *"[The instructor] could tell if a crowd of students dosed off and knew how to bring them back to life!"* Our summer students were such a cohesive group that after the final exam, we all came back and took informal class pictures.

In summary, by embracing the challenges of today's society, finding new ways of teaching and learning, believing in students' success, and by making a connection and staying connected with students, we may all continue to enjoy the journey that is called "teaching."

About the Authors

Valerie Weiss is an Assistant Professor and teaches undergraduate anatomy and physiology to students in the pre-health professions. She is also a medical illustrator, contributing to the course companion and lab workbook used in the course. Rob Sillevs is an Assistant Professor and teaches in the Doctor of Physical Therapy Program, with a focus on movement sciences and physical therapy courses. He previously taught A&P courses and has had a long-standing interest in mindfulness and meditation. Peter Reuter is an Assistant Professor and teaches undergraduate and graduate A&P courses. He is a member of the Honors College Executive Board and an Honors College Faculty Fellow.

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