Beyond the Learning Glass

Man Wing Chan  
*Western Michigan University*, manwing.chan@wmich.edu

Ryan Cushman  
*Western Michigan University*, ryan.cushman@wmich.edu

Follow this and additional works at: [https://scholarworks.wmich.edu/stem-gta-posters](https://scholarworks.wmich.edu/stem-gta-posters)

*Part of the Science and Mathematics Education Commons*

**WMU ScholarWorks Citation**
Chan, Man Wing and Cushman, Ryan, "Beyond the Learning Glass" (2020). *STEM Instructional Graduate Teaching Assistant Posters*. 19.  
[https://scholarworks.wmich.edu/stem-gta-posters/19](https://scholarworks.wmich.edu/stem-gta-posters/19)

This Poster is brought to you for free and open access by the Office of Faculty Development at ScholarWorks at WMU. It has been accepted for inclusion in STEM Instructional Graduate Teaching Assistant Posters by an authorized administrator of ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.
Beyond the Learning Glass
Man Wing Chan, Ryan Cushman, Jamie Hallas, and Maria Talanda-Fisher
Department of Mathematics, Western Michigan University
STEM Instructional Program 2019-20

Introduction

For our poster project with the STEM Instructional Program, we made Learning Glass videos to supplement material in Algebra II and Precalculus sections and then assigned a worksheet and survey to gain some understanding of how the students interacted with the videos. In the midst of this project, we were overwhelmed with the coronavirus pandemic and the need to move our courses to distance learning. In this poster, we reflect on how the lessons of this program proved invaluable in addressing the challenges of distance learning.

Universal Design

Another key concept that was powerfully effective was universal design for learning. As part of the program, we attended the WMU Summer Seminar for Teaching Inclusivity. One of the sessions was about universal design, a concept originally applied to architecture. The idea here is to develop structures that are accessible for all as part of their natural design, not as an add-on or an afterthought. Designing structures in this manner is a dignifying way to make sure all can navigate comfortably. The Seminar for Teaching Inclusivity introduced how this concept has been applied to the classroom, as well.

Learning Outcomes and Backwards Design

The first thing that we found incredibly helpful in the transition to distance learning was the related concepts of learning outcomes and backwards design. During the two week intensive program and again during the year-long mentorship program, we learned from Dr. David Reinhold and others about the importance of centering your course around core learning outcomes—specific, actionable things students should be able to do after interacting with the material. We all found this concept to be compelling and helpful when we were learning about it in the STEM Instructional Program. As such, we structured our instruction around these when we were teaching face-to-face. However, the transition to distance learning made the concept of learning outcomes indispensable. Since by necessity we had to cover less material, we really needed to focus on which concepts were the most important. What things are essential for our students to be able to do when they leave this course? We had less luxury to work with material that was less than absolutely essential. In the case of precalculus, it is more important to be able to solve trigonometric equations than to recognize and graph conic sections, and thus the former was included and the latter was not. This helped us narrow in on the important concepts and make the design of the new course structure more seamless, despite the small amount of time given.

Learning Glass Video Creation

During one session of the STEM Instructional Program, we were introduced to and encouraged to use a new technology on campus—a Learning Glass studio. Learning Glass is an implementation of a lightboard—a setup designed to create videos of an instructor at a glass board. The advantage of this is that it allows the instructor to write on the board and make eye contact with the camera, creating a more dynamic experience than a video of someone at a blackboard would. As a mentorship group, we discussed advantages of using this technology during the program.

Empathy

One of the most impactful themes during the STEM Instructional Program was a discussion about the central place empathy should have in the mind of instructors. At the time as graduate students, with our experience as undergraduate students still relatively fresh, we all had a previous awareness of the many challenges our students face. However, the consistent exploration via scholarly articles, data, discussion, and speakers helped bring clarity to our understanding of the place of empathy in our role as instructors. And this was indispensable when working out what sort of format our distance-learning classrooms would take. We all implemented surveys to figure out what the situation of our students was. Factors like technology availability, location, and living situation were weighed heavily in our discussions about how we wanted to move forward with our courses, along with what sort of accommodations might need to be made to help our students achieve the learning outcomes of our courses despite the difficulty of the situation.

Technology and Availability Survey

1. Do you have access to reliable high-speed internet?
   - Yes
   - No

2. What devices do you have access to?
   - Laptop
   - Desktop
   - Tablet

Contact Information

Man Wing Chan
manwing.chan@wmich.edu
Ryan Cushman
ryan.cushman@wmich.edu
Jamie Hallas
james.t.hallas@wmich.edu
Maria Talanda-Fisher
maria.talanda-fisher@wmich.edu