

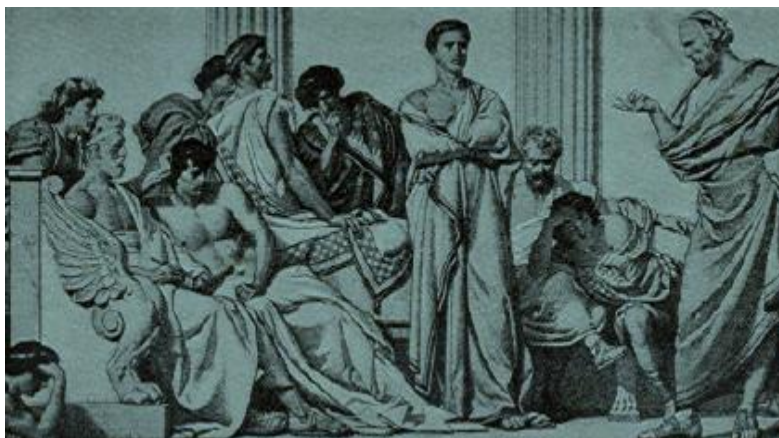
LOOKING FORWARD LEARNING GLASS: A Return to Facing Students While Teaching

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BACKGROUND

Education often parallels life, and life is made of cycles. The cycles of education are far too numerous and fluid to count, although there are a few major trends, which we can observe. Early in the history of education, a teacher faced toward the student, speaking as the student faced the teacher and listened, made sense, and attempted to apply the information which was being shared.

The most notable person who taught in this way was Socrates of which a popular modern day strategy of teaching arose, the Inquiry-Based method. In the next major phase, the teacher continued to speak and now the student wrote notes on what was said, thereby



facing forward, yet their line of sight would fluctuate between the teacher and their writings. Next, the teacher turned their back to the student to write information in a way that the student could view and perhaps copy the teacher's notes.

This paradigm created a dynamic, where students would not have to spend time looking at the teacher's back, the teacher's written notes, and what the student was writing.

As you might imagine, each iteration of these phases required students to acquire additional skills of organization, note-taking, and perhaps even critical analysis of which information is sufficiently important to duplicate on their notes, and ideally an enhanced level of metacognition and self-regulated learning to reconsider what they were thinking and how well they were processing the information.

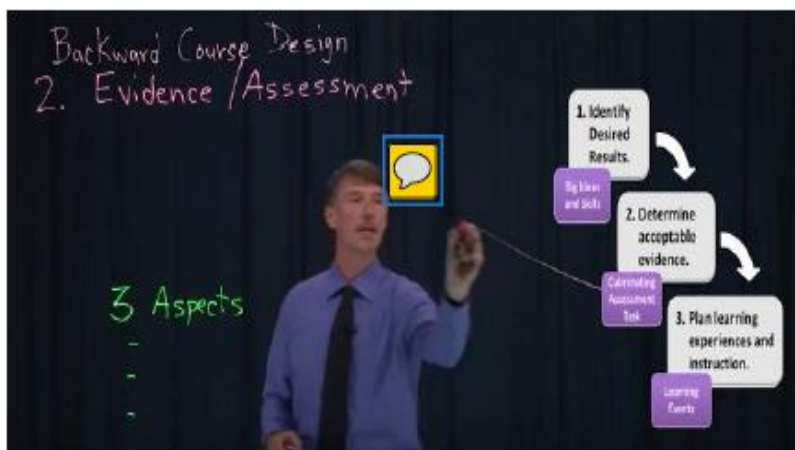
The next step added educational technology into the equation, albeit differentially as faculty select to integrate in widely diverse ways and levels (much like the art and science of teaching itself, perhaps).

As with many new approaches, the technology used in the beginning was difficult to implement and navigate.

However, today, there are many low threshold applications, which can empower both teacher and student to access information, simulate authentic scenarios and gauge student abilities through formative assessments, which can provide real-time data for better decision-making.

One educational technology, in particular has allowed faculty to return to an earlier step in the student/teacher interaction, where the teacher faces forward and the student can see their face and natural gesturing as they move, speak and write notes using a Learning Glass.

WHAT IS A LEARNING GLASS?



A relatively recent invention coupling physics and technology has created the ability to capture a video, where the teacher can face forward, write and speak normally as their image and writings create a unique electronic learning object. Perhaps the

best way to clearly understand a learning glass video is to view a [Learning Glass Example](#). From the San Diego State University (SDSU) website (SDSU Instructional Technology Services, 2015), the "Learning Glass was designed by Dr. Matt Anderson and built by Dr. James Frazee's group at Instructional Technology Services, SDSU. The presentation system uses LED side lighting on low-iron shower glass to create a see-through white board. In addition, the Frosted Glass attachment allows the ability to include slides, which may also be annotated on the Learning Glass system".

WHY USE A LEARNING GLASS?

Several universities are beginning to develop this technology and offer as a service to their faculty members, including San Diego State, Houston Community Colleges the University of Alaska, Fairbanks, California State University, San Marcos, Lehigh University and the University of California (UC) system.

The UC System has created a website, which shares how faculties are using the Learning Glass to enhance student engagement.

University of Wisconsin-Stout faculty have created 5-8 minute learning glass videos on their lectures and have seen benefits of being able to make the lectures more interactive and open source, as well as show to prospective students (Leader Telegram, 2016). Dr. Matt Anderson, the inventor of the Learning Glass has gathered data comparing the efficacy of the Learning Glass vs. a document camera, which result in more engaged students with Learning Glass and better learning outcomes (Anderson, 2016). Perhaps one of the major reasons cited for using the learning glass is similar to using most any educational technology, which is to increase student engagement. There have been numerous studies, which correlate student engagement to many positive learning attributes, more recently, there are studies which indicate integrating appropriate educational technology can increase student engagement (Hargis, Cavanaugh, Kamali, & Soto, 2014; Hargis, Cavanaugh, Kamali, & Soto, 2013; Mayberry, Hargis, Meler, Boles, Dugas, O'Neill, & Rivera, 2012; Soto & Hargis, 2014; Davidson, & Hargis 2016; Hargis, & Soto, 2013).

From the research above, the key attributes that have been found to increase student engagement is:

- ✓ The ability to connect with students, especially in a more humanistic way;
- ✓ To empower students to take more control of their own learning, especially when
- ✓ and where they are best able to sustain focus and attention;
- ✓ To create frequent interaction between the student and the content; instructor;
- ✓ and other students; and
- ✓ To provide as near of authentic experiences, that parallel the type of behaviors,
- ✓ which will be needed in their careers.

In summary, since this technology is still relatively new, there are many remaining questions on its effectiveness for teaching and learning, which faculty are currently researching.

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Dr. Jace HARGIS currently is the Director of the Center for Teaching & Learning at the University of California, San Diego. His prior positions include a College Director in Abu Dhabi, UAE; an Assoc. Provost of Faculty Development, Assessment and Research and Professor in Honolulu & Assis. Provost of Faculty Development and Assoc. Professor in northern California; and a Director of Faculty Development and Assis. Professor in Florida. He has authored a textbook and published over 100 academic articles as well as offered hundreds of presentations.

He has earned a B.S. in Oceanography from Florida Institute of Technology; an M.S. in Environmental Engineering Sciences and a Ph.D. in Science Education from the University of Florida. Dr. Hargis' research agenda focuses on how people learn while integrating appropriate, relevant and meaningful technologies.

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