

Lemongrass room  
4.25-4.40pm

## Developing bona fide online MOOC lectures to the world using the Lightboard

**Christoph Dominik ZIMMERMANN<sup>1</sup>, Alvita ARDISARA<sup>2,3</sup>, Fun Man FUNG<sup>3,4\*</sup>**

<sup>1</sup> Department of Materials Science and Engineering, Faculty of Engineering,  
National University of Singapore

<sup>2</sup> Food Science and Technology Programme, c/o Department of Chemistry, Faculty of Science,  
National University of Singapore

<sup>3</sup> Department of Chemistry, Faculty of Science, National University of Singapore

<sup>4</sup> Institute for Application of Learning Sciences and Education Technology (ALSET),  
National University of Singapore Faculty/Department>

\*[chmffm@nus.edu.sg](mailto:chmffm@nus.edu.sg)

Currently there are two primary methods of recording flipped classroom videos: (1) using the white board; (2) screencasting a PowerPoint presentation (Fung & Jeyaraj, 2017). Both methods have several disadvantages. In the former, the presenter's body obscures the content. Both methods lack an element of human interaction between the viewers and presenter and require lengthy editing. These reasons discourage educators from adopting the flipped classroom (FC). In this PechaKucha presentation, we share our motivations and experience with the Lightboard, an interesting method of filming with a glass board that addresses the aforementioned problems. This novel format could help achieve our pedagogical goal of engaging online learners better by providing greater visual connection with the lecturer.

### Preamble

Some research has found that the most students felt that the flipped classroom methodology is more effective (Gloudeman *et al.*, 2018) and preferred the flipped classroom over traditional, lecture-style teaching (McLaughlin *et al.*, 2013). It was also found that students were more innovative and cooperative when the flipped classroom approach was used (Strayer, 2012). Furthermore, the flipped classroom principle could have tangible benefits; in a study with 433 students, the fraction of students achieving the highest possible grade was 47% higher (40.5% vs. 27.5%) in the flipped classroom compared to the traditional lecture (Guy & Marquis, 2016).

An alternative to the recording of flipped classroom videos is the Lightboard method which has the benefit of showing both illustrations/handwriting and the lecturer's face. Student engagement has been found to be higher when the lecturer's face was shown in addition to slides or other explanations (Guo *et al.*, 2014). Furthermore, the Lightboard enables the lecturer to keep continuous eye contact with the students, which was found to increase student engagement by up to three times. From our experience with creating 133

Lightboard videos, this new way of delivery flipped lectures provides both educators and students the opportunity to learn communication skills needed to engage diverse audiences (Fung, 2017).

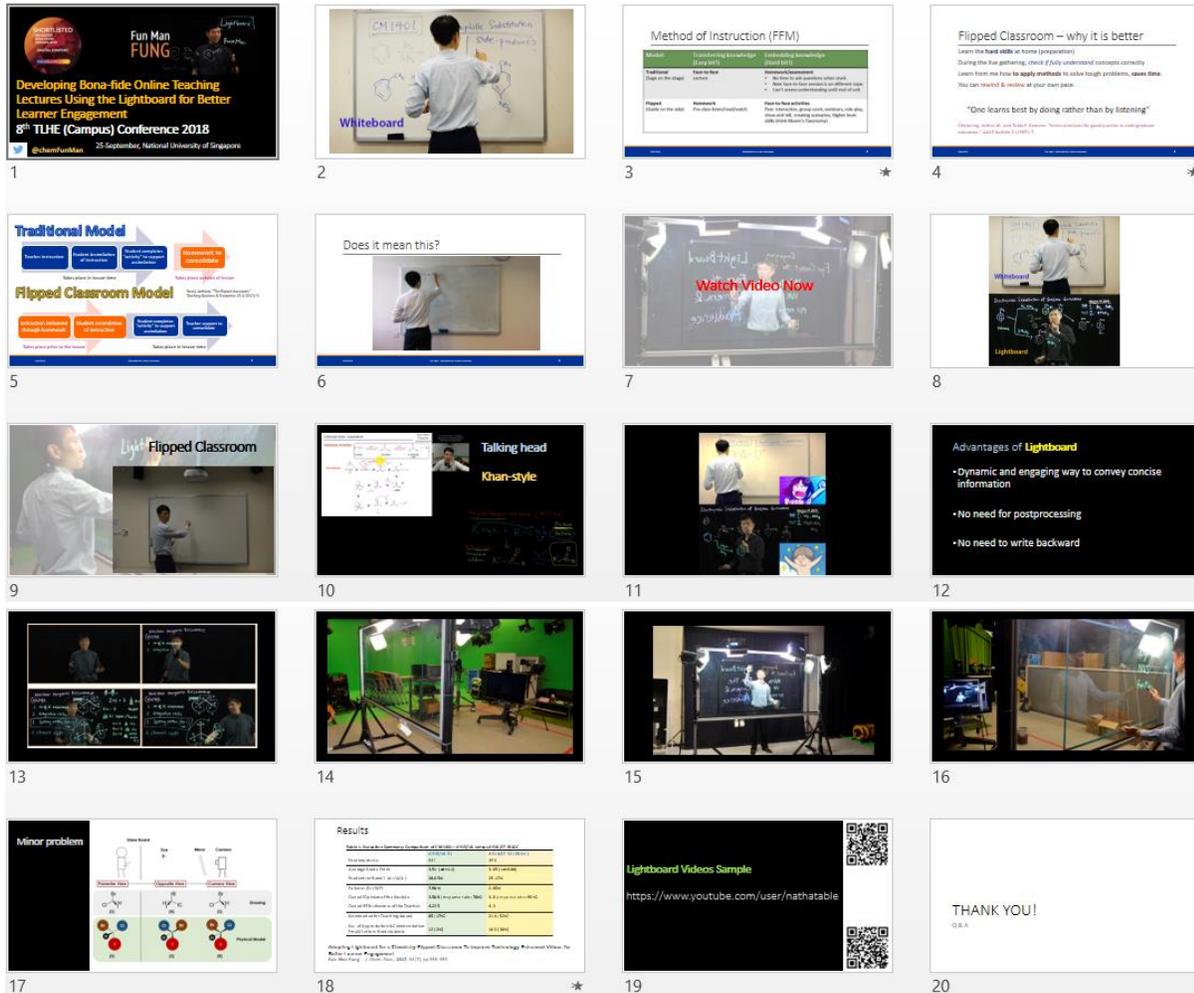


Figure 1. Using the Lightboard to engage learner better and training educators unique communication skills in a MOOC.

## Keywords

Innovation; educational approaches; technology, lightboard, flipped classroom, blended learning, MOOCs

## References

- T Fung, F. M. (2017). Adopting Lightboard for a Chemistry flipped classroom to improve technology-enhanced videos for better learner engagement. *Journal of Chemical Education*, 94(7), 956–959. <http://dx.doi.org/10.1021/acs.jchemed.7b00004>
- Fung, F. M., & Jeyaraj, A. R. (2017). What worked for me : Latest trends in technology-enabled blended learning experience (TEBLE). *Teaching and the Internet: The Application of Web Apps, Networking, and Online Tech for Chemistry Education* (pp. 99–114). <http://dx.doi.org/10.1021/bk-2017-1270.ch006>
- Gloudeman, M. W., Shah-Manek, B., Wong, T. H., Vo, C., & Ip, E. J. (2018). Use of condensed videos in a flipped classroom for pharmaceutical calculations: Student perceptions and academic performance. *Currents in Pharmacy Teaching and Learning*, 10(2), 206–210. <http://dx.doi.org/10.1016/j.cptl.2017.10.001>
- Guo, P. J., Kim, J., & Rubin, R. (2014). How video production affects student engagement. *Proceedings of the first ACM conference on Learning@ scale conference*, 41–50. <http://dx.doi.org/10.1145/2556325.2566239>
- Guy, R., & Marquis, G. (2016). The flipped classroom: A comparison of student performance using instructional videos and podcasts versus the lecture-based model of instruction. *Informing Science and Information Technology*, 13(13), 1–13. Retrieved from <http://www.informingscience.org/Publications/3461>
- McLaughlin, J. E., Griffin, L. T. M., Esserman, D. A., Davidson, C. A., Glatt, D. M., Roth, M. T., Gharkholonarehe, N., et al. (2013). Pharmacy student engagement, performance, and perception in a flipped satellite classroom. *American Journal of Pharmaceutical Education*, 77(9), 196. <http://dx.doi.org/10.5688/ajpe779196>
- Strayer, J. F. (2012). How learning in an inverted classroom influences cooperation, innovation and task orientation. *Learning Environments Research*, 15(2), 171–193. <http://dx.doi.org/10.1007/s10984-012-9108-4>

## Acknowledgements

I would like to thank the NUS Centre for Instructional Technology, NUS LIFT-funded project on iBLOC “CM1401 Chemistry for Life Sciences”, Dean’s Office at the Faculty of Science, and the Department of Chemistry for their support.