ENgaging and Adapting Blended LEarning (ENABLE): HyFlex in Statistics 250

Jackie Miller, Ph.D., and Julie Ghekas
Department of Statistics, University of Michigan

UNIVERSITY OF MICHIGAN
ΣSTATISTICS

UNIVERSITY OF MICHIGAN

What is HyFlex?

HyFlex stands for hybrid-flexible

"HyFlex courses provide participation options for students, allowing them to choose between online and classroom-based learning on a weekly (or regular) basis. Essentially, students create their own blend of participation that fits their needs and desires."
    Dr. Brian Beatty (San Francisco State University)

Student Choice
Options of synchronous online remote or face-to-face attendance
Decision made independently by each student for each class meeting

Attendance methods provide **comparable** learning outcomes and experiences

Technology is leveraged to meet teaching and learning needs

Key Components of HyFlex

Lecture streaming and recording technology
Live attendance (streaming) and review of content for homework and/or exams (recording)
Adobe Connect, Camtasia, Echo360

Audience response system (ARS)
Facilitates participation in class to collect and analyze student responses to questions, including polling with text messaging, mobile devices, and web browsers
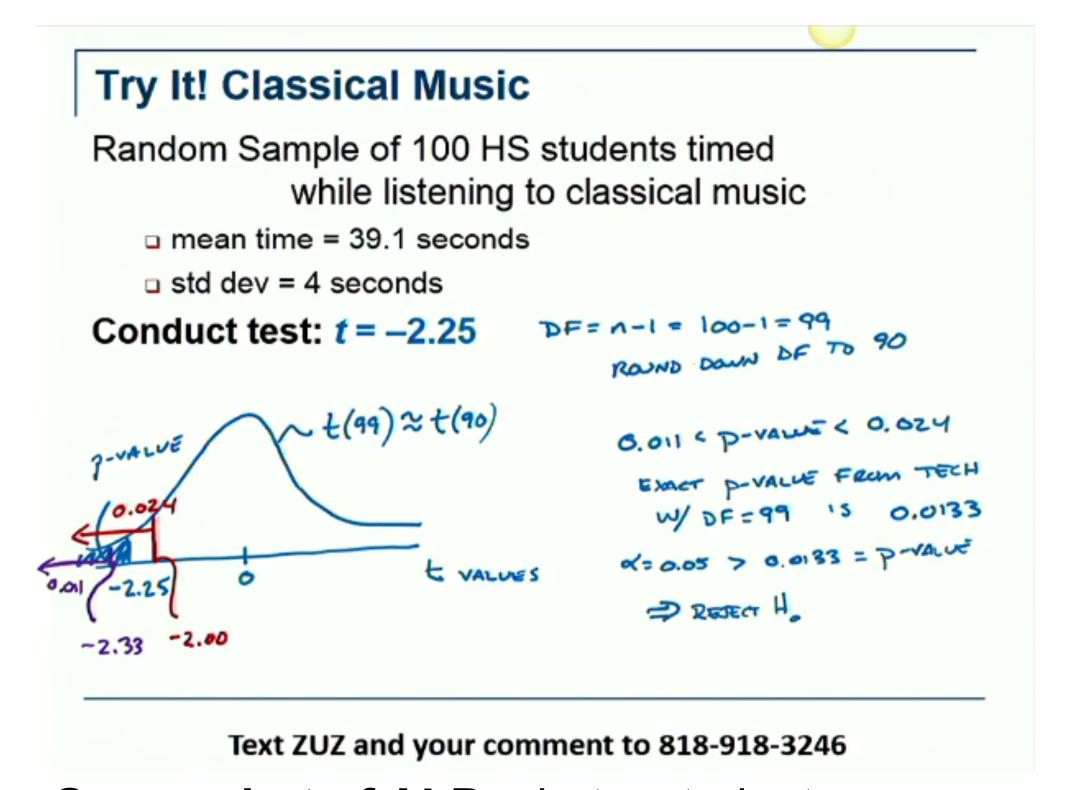Ability to be in the classroom or remote and still respond
Echo360, Poll Everywhere, Top Hat

Backchannel
Communication processes for audience members to connect and optionally for the instructor or other facilitators (e.g., GSIs) to monitor and respond in real time
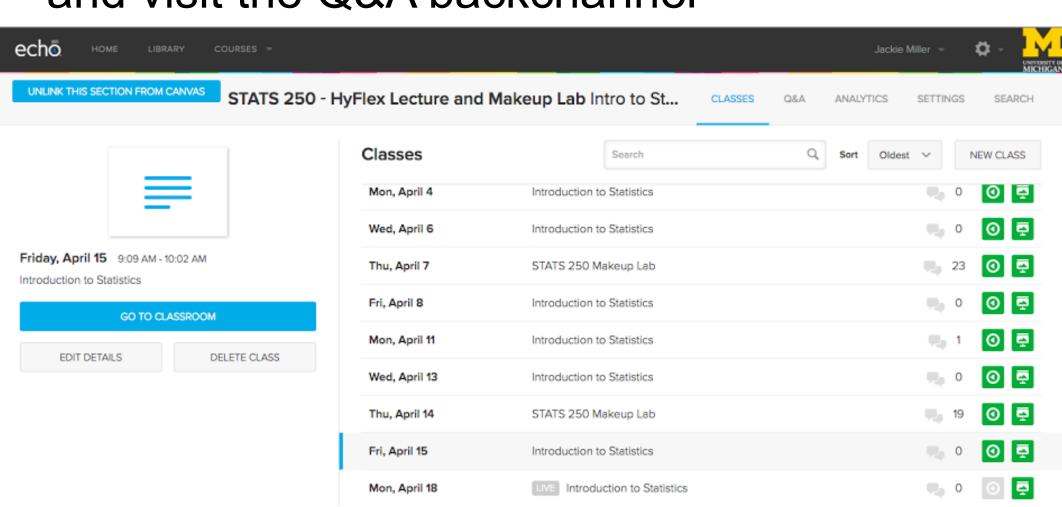Echo360, Poll Everywhere, Top Hat, Twitter

Active Learning Platform (ALP)

Try It! Classical Music
Random Sample of 100 HS students timed while listening to classical music
- mean time = 39.1 seconds
- std dev = 4 seconds
Conduct test: $t = -2.25$
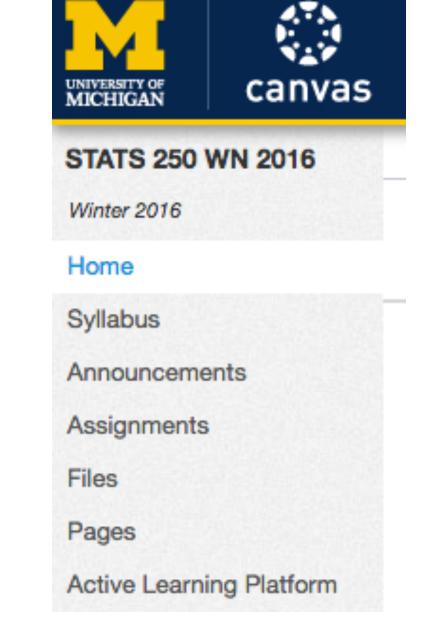
Text ZUZ and your comment to 818-918-3246

Screenshot of ALP, what a student sees if they tune in synchronously or watch a video recording
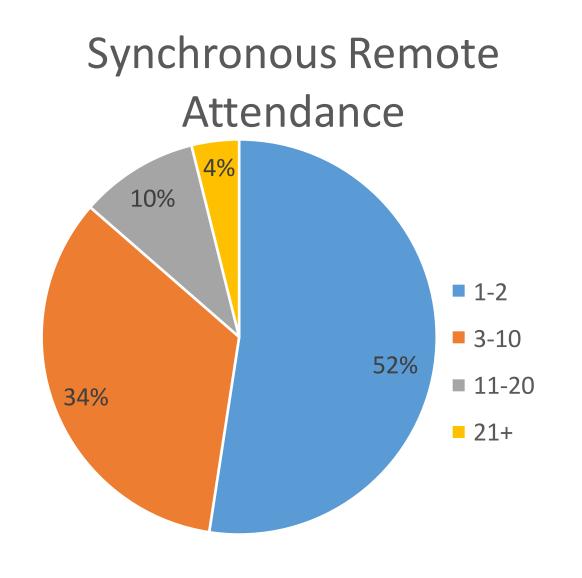
Echo 360's interface with the ALP within Canvas allows students to go to the virtual classroom, view previously recorded lectures, and visit the Q&A backchannel
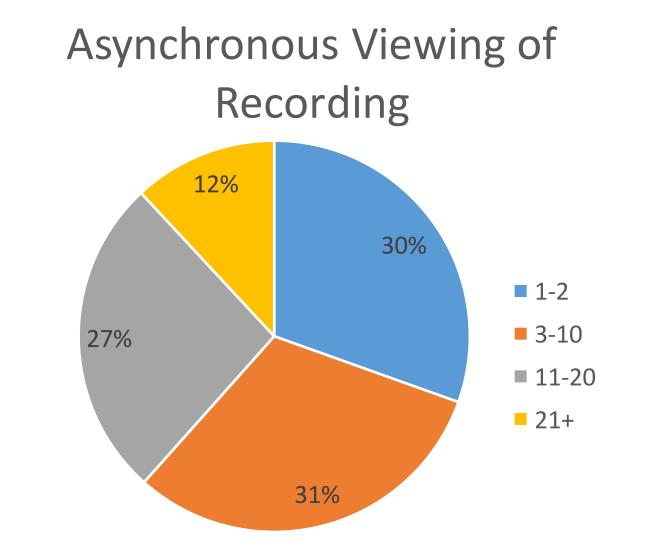

ALP accessed from Canvas

Preliminary Results

Synchronous Remote Attendance
- 1-2: 52%
- 3-10: 34%
- 11-20: 10%
- 21+: 4%

Asynchronous Viewing of Recording
- 1-2: 30%
- 3-10: 31%
- 11-20: 27%
- 21+: 12%

Attendance data were available as of March 31, 2016:
- 206 unique students had attended lecture synchronously online
- 151 unique students had viewed the recorded HyFlex lectures
- 279 unique students had attended the HyFlex make-up lab, either face-to-face or remotely
- Survey and focus group data are upcoming

References
Risser, M.D., *Student Choice, Instructor Flexibility: HyFlex learning for large courses*. Poster session presented at: Campus Technology Annual Conference. July 2013; Hynes Convention Center, Boston, MA.
Miller, J.B., Risser, M.D., and Griffiths, R.P., *Student Choice, Instructor Flexibility: Moving Beyond the Blended Instructional Model.* Issues and Trends in Educational Technology, vol. 1, no. 1, 2013. Available at https://journals.uair.arizona.edu/index.php/itet/article/view/16464.

Collaborators
Kit Clement and Tailen Hsing
Contact Information
jabmille@umich.edu, jghekas@umich.edu

CRLT
Center for Research on Learning and Teaching

Funding

NSF

Statistics 250

- Introductory Statistics course
- Largest course on campus, serving more than 2000 students each of Fall and Winter terms
- Required by almost all students in LSA
- Students choose a lecture/lab combination to suit their schedules
- 6 lectures
  - 2 lectures recorded for asynchronous viewing, 1 HyFlex and 1 regular
  - Attendance is not required
  - Students may attend any lecture regardless of enrollment
  - Technology not required for face-to-face HyFlex lecture
- 60+ labs
  - Attendance is required
  - Meets once per week
  - Can choose from a face-to-face or HyFlex make up lab if miss enrolled lab
  - HyFlex lab accessed through ALP only
- HyFlex lecture is listed in the course guide and available to all students

Technology Needs

Tablet computer
Projects and streams lecture slides with real-time annotation

Lapel microphone
Projects voice within the room and online

Second computer or tablet OR instructor
- Monitors the backchannel
- Provides live assistance to students with questions

Live streaming and recording software
Facilitates students attending remotely and synchronously as well as recording for asynchronous viewing
Echo360's ALP was used for the 2015-2016 academic year
Adobe Connect and Top Hat were used for 2014-2015 academic year