

Transitioning an Engineering Course to Studio Format

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Presentation Overview

- **Motivation**
- **“Test Drive”**
- **Course Modifications**
- **Assessment / Student Response**
- **Conclusions**

Motivation

- **Course: EE4902 (*Analog IC Design*)**
 - **Junior / Senior / Grad Level**
- **Complaints**
 - **Unsatisfying lab experience for students**
 - **Poor retention of material**
- **New studio classroom:**
 - **Completed Summer 2001**
 - **Equipment suitable for EE4902**

Problem

- **Lecture time:**
 - **Fixed at one hour, 4X / week**
- **Most studio classes:**
 - **Usually longer lectures (2-3 hour), 2X / week**
- **Is one-hour delivery of studio lecture possible?**
- **Experiment: “Test Drive!”**

“Test Drive”

- **Test lecture with student volunteers**
 - **Explore feasibility of 50-minute lecture**
- **Plan:**
 - **15 minutes of lecture**
 - **20 minutes of lab measurements**
 - **15 minutes of computer simulations**
- **Students complete evaluation form afterward**

Student Population

- **Volunteers solicited by e-mail**
 - **No restrictions: some had taken EE4902 already**
- **~~Bribe~~ Incentive:**
\$20 gift certificate to a local restaurant
- **22 volunteers**
 - **13 actually showed up for the test drive**

Test Drive Results

- **Lecture lasted 20 minutes too long**
 - **Lab and Simulation in one lecture too much?**
- **Modify delivery for actual course:**
 - **One hour lecture, 4X / week**
 - **Lecture plus lab measurements some days**
 - **Lecture plus simulations other days**
 - **Three hour open lab, 1X / week**
 - **Allow flexibility for students who need extra time**

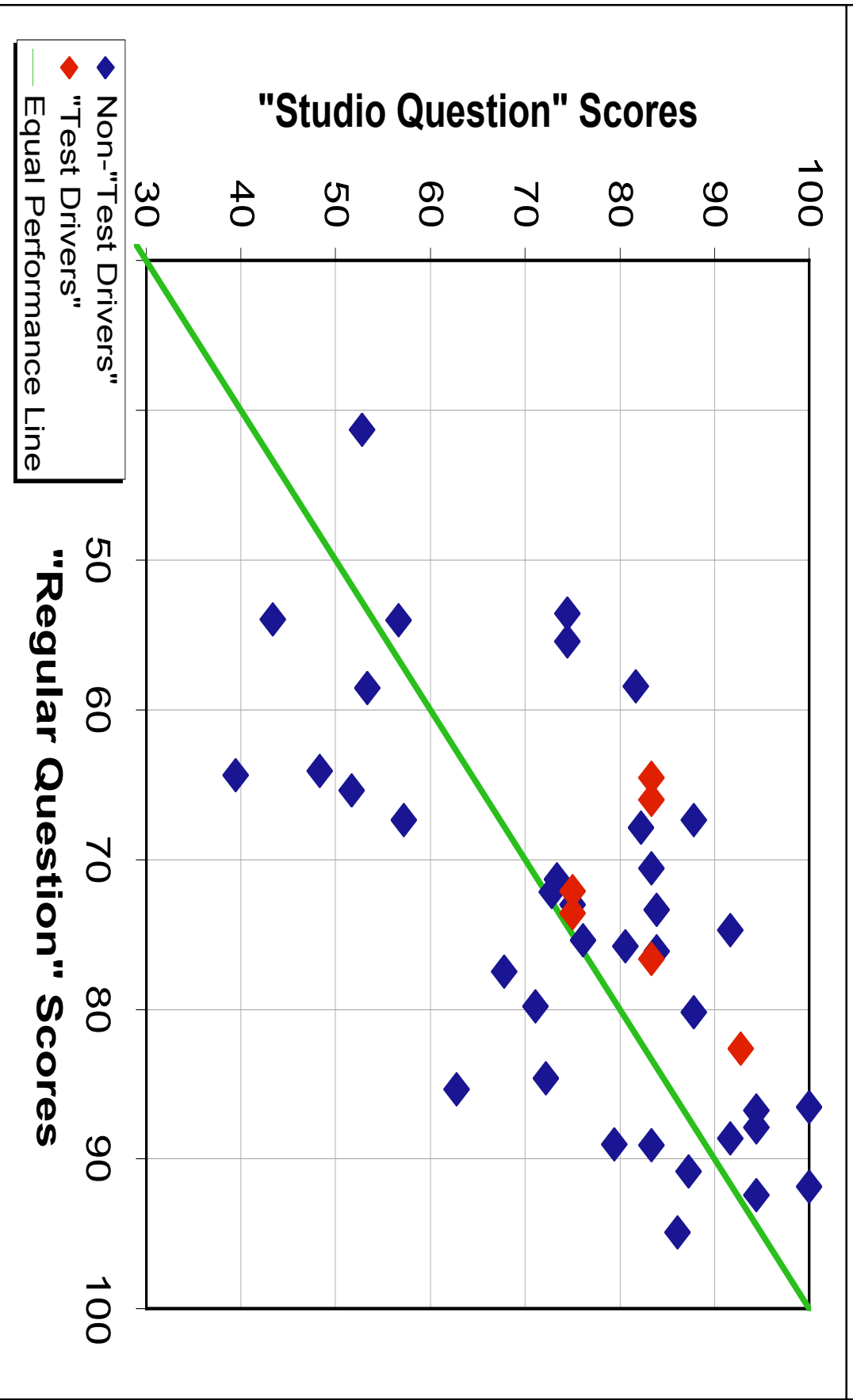
Test Drive Student Feedback

- **Most students preferred the new studio format**
 - **“I learn by doing – so combining the theory with practice at the same time is great”**
- **Many students commented on the quick pace**
 - **“I think having a 2-hour class would allow more depth in topics”**
 - **“The simulation took twice as long as expected”**
 - **“Some of the time I felt rushed trying to keep up”**

Course Assessment

- **Three exams given during the 7-week course**
- **On each exam, one question directly related to “studio information”**
 - **Example: waveforms measured from oscilloscope**
- **Hypothesis: students would perform better on “studio questions” than on others**

Result: 67% performed better on “studio” questions



Student Response (Course Evaluations)

- **Positive: Studio format**
 - “Cool to see what we learned in lecture applied immediately after to relate the theory to practice”
- **Negative: Lecture period too short**
 - “Not enough time for labs! Make class 2 hours”
 - “Made it to my 11:00 about 6 times”

Conclusions

- **Exam results encouraging**
 - **More assessment in next offering (Spring 2003)**
- **Studio format is well-received**
- **50-minute lecture periods too short**
 - **Moving to 2 hour periods, 3X / week**
- **Test drive is an excellent tool**
 - **Advance information that improved delivery**
 - **Caution: self-selection of student population**

Acknowledgments

- **Brad Lister, PhD., RPI**
- **Judith Miller, PhD., WPI**