

# #TeachECONference2020: Small Changes with Potentially Big Impact - Summary of Discussion Q&A

Questions and answers from the session, edited for clarity and completeness.

George Orlov

(Targeting Students-at-Risk Using a Standard Math Skills Assessment)

*Q: Is knowledge of maths concepts/ability to calculate the same as having the skills to use maths as an economist?*

A: While standard math tests (in US that's SAT and ACT) have predictive power for performance in intro, MESA asks students to use exactly the skills we need in an economics context. We find it has additional predictive power beyond SAT/ACT. That is, pure math skills are necessary, but you also need to be able to apply them to economics problems. There are definitely students with the former but not the latter.

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*Q: The problem I think is how much math is sufficient for economics. Since math is a huge area.*

A: I agree 100%, and that's why MESA is designed to test the specific math skills that students need most to succeed in an economics course.

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*Comment: I tried giving an easy (I thought!) math assessment in Econ 1 in fall: 8 questions, 1/2 point each, taken in section, graded on gradescope. Students who received  $\leq 2.5/4$  could raise their score to 4 if they met with a tutor to work on math skills. Tutors are free, 1st year econ PhD students. 150 of the 240 who scored  $\leq 2.5$  visited a tutor. That for me was a win -- those were students most likely, I think, to benefit from tutoring over the term but the challenge had been to get them in the door of the tutoring office the first time. Requirement was to see the tutor within 1 month of math assessment. I did some analysis of midterm scores, can't control for selection bias, but conditional on math score, those who saw a tutor did better on the first midterm.*

A: This is exactly the sort of thing we hope instructors will do if they have very early knowledge of their students' math skills. You can create your own math test, or you can use ours (MESA).

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*Comment: One option for a "treatment" for students who score poorly could be going through results during a short one-on-one meeting and discussion with a tutor. Daunting tasks, but I'd be too scared leaving it up to self-direction with 1st year students.*

A: Let's let a thousand flowers bloom and try lots of treatments. If we have good ways to identify these students up front and good measures of student learning that we can use at the end of the semester, we should be able to learn some really useful things. And help a lot of students!

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*Q: Wouldn't the early identification of weakness be a double-edged sword? Needs to be paired with a strong "can do" message or could do more harm than good.*

A: This is absolutely true!! We are VERY careful to communicate constructively with students who score below our threshold for intervention. At Cornell this spring we sent the following email to students who did poorly to encourage them to enroll in a supplemental support course (ECON 1001) that ran alongside our intro micro course (ECON 1110):

Dear <first name>,

Economics department research indicates that your score on the math assessment falls within a range strongly suggesting that additional support in mathematics concepts and skills may lead to greater success in Econ1110 (Introduction to Microeconomics).

The department is committed to your success, and in collaboration with the Learning Strategies Center, we offer a newly-revised one-credit supplemental course (Econ 1001) that provides instruction and support throughout the semester on mathematics and economics concepts and skills. We strongly recommend that you enroll in Econ 1001 alongside Econ 1110. Econ 1001 is open to all students regardless of score on the assessment. However, we have found that the course is especially important for students whose scores are similar to yours, and who otherwise are likely to earn a C+ or below in the course.

All the best,

INSTRUCTOR

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*Q: How do you get students to take this test seriously? Does it count for course grades? Could it be that students put in minimal effort and this explains some of the false positives you observe? That is, some students actually have good math skills and do well in the class even though they don't try on the test and get a low score.*

A: We require them to take the test, but their score doesn't count toward their course grade because we don't want to incentivize cheating. At Cornell, we give it as an online test and we explain that we want them to put in a good effort so we can learn what they actually know rather than building on what we think (or hope) they know. We find most students put in a good effort based on how much time they spend taking the test. We throw out scores where the students spend less than 5 minutes on the test. At George Washington, Irene also has participation (but not score) count toward their grade and she also gets very high levels of participation. Martha Olney at Berkeley also gave a nominal amount of credit for participation and got very high levels.

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*Q: If we want to use MESA in our own classes, who should we contact?*

A: You can ask questions about the assessment or sign up to pilot the test in your courses by emailing [econ-assessments@cornell.edu](mailto:econ-assessments@cornell.edu). You can learn more about our whole suite of assessments at <https://cder.as.cornell.edu/economics>.

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*Q: Do you have the MESA in a form that is easy to import into an LMS?*

A: No, but we can provide a qualtrics link to the assessment and then give you the data when you close the test taking window.

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*Q: Can the assessment actually have a detrimental effect? if a student performs badly he/she might lose motivation and give up and not work hard after that?? tricky*

A: Again, we have to be very careful how we communicate with students who get low scores and offer them quality support. This is true for traditional mid-semester exams as well. Irene takes weaker students out to lunch and attends their events at George Washington. She also encourages them to take the prep class a second time if needed. Our student success office pays for the second round. Martha Olney notes that at Berkely, it looks like students who scored very low on the test were less likely to take the course. These very early interventions can make a big difference to the diversity of students who successfully complete the course. In addition to actually teaching them math skills, interventions show students that someone is paying attention and is committed to their success. It makes a difference. If they feel like they belong, they will be more likely to invest in learning the material.

## Eva Dziadula and Amanda Felkey

(Micro Commitments: The Effect of Small Commitments on Academic Performance)

*Q: What is the sample size?*

A: 1150 students

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*Q: Effect may depend on course design (e.g. lots of small assignments --> less need for microcommitments) which may not be caught by course fixed effects?*

A: The overall effect possibly, but that would be the same for all students as all the content in the course, and in the text messages is identical. The only “treatment” is the behavioral component “Do you commit to completing the task today?”

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*Q: It would be great to get details on what the microcommitments looked like in hybrid and online settings. Many attendees would really like to build these into courses next term.*

A: All students received text messages with instructor-created content focusing on applying the lesson material to their everyday life. The intervention was the “I commit to doing this.” All students got the same Actions - focused on more thinking to connect their lives to econ. If anyone would like more specific information about the technology or content they can contact Amanda Felkey at [felkey@lakeforest.edu](mailto:felkey@lakeforest.edu)

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*Q: Is it possible that students who did poorly on the first exam were more likely to cheat on the second exam? This would be easier in online courses. Thus, higher scores.*

A: Perhaps, but this should still be random in the control and treatment groups and thus not affect the results of the study

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*Q: Can the results be driven by self-selection into online/hybrid courses?*

A: There certainly is self-selection into online/hybrid classes but it won't affect the results as the behavioral component is assigned randomly among the students in a particular class.

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*Comment: Several attendees complimented the work and were intrigued by the results!*

A: Thank you!!!

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*Comment: This is distinct from the question of whether a nudge can encourage students to major in econ. There I think many of us in [the UWE project](#) found that the nudge ("great job! consider majoring in econ!") disproportionately benefitted women and URM students (benefit=choose to go on in econ).*

A: Yes, this is different but those results are why Eva sends emails to all students who got a B or above in the course :)

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*Q: Would weekly smaller assessments be a substitute in online courses?*

A: Regarding weekly assessments--All students in our study received the same content in the text, the intervention here was that the treatment group was given a choice to commit to completing it that day, the control group had no commitment associated with their action.

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*Q: Several attendees raised the potential problems with getting our students' phone numbers and texting them (which would reveal our phone numbers).*

A: Email might be a poor substitute since many students don't carefully read all their email. But there are several apps that allow you to communicate with students by text without revealing phone numbers we used ProHabits with commitments for our treatment and EZtexting for simple texts of content.

But some report that students also get a steady stream of incoming text messages, this isn't obviously better than email reminders.

For this project, phone numbers were gathered on the intake questionnaire. The commitments and texts came from ProHabits and EZtexting which have shortcodes. So students receive all notifications from the shortcodes not the instructors own phone. Nothing indicates the instructors phone number.

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*Q: How regularly should we be communicating with our students? We want to tell them things but we don't want them to tune us out. Sounds a lot like parenting.*

A: This is a different type of question, the students here knew it was related to class and voluntarily signed up. It's not reminders to finish homework but to think about economics in the real world, not tied to grade.

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*Q: How about stopping sending text messages and doing Sunday emails (for the treatment group) and no Sunday emails (for the control group)? Huge effect of Sunday emails!*

A: This would be about reminders, not a behavioral component of commitment to a task. Also, that would likely not be approved by IRB as it is clearly giving some advantage to a group of students.

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*Q: Are texts/emails to students personalised (like Dear Cloda) or bulk mail?*

A: Both platforms personalize the message so it said something like "Hello, Mary. Today think about risk...."

## Rebecca Chambers

(Can a Nudge Improve Student Performance? A Replication of the "Online Coaching/Barriers to Success" Intervention)

*Q: Given that the classes are Principles classes, I wonder if the tips are written in the Principles context, or are they general tips?*

A: The tips were general tips about how to succeed in an academic setting, not tips specific to Principles.

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*Comment: Good to see a study that presents results that are not strong and large. It is really interesting to have small effects too. Precisely estimated small but insignificant effects can be a big contribution!*

A: Thank you - I agree!

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*Comment: I think the term "nudge" is misused a lot in this context. A lot of this is not really choice architecture.*

A: Thank you for pointing this out. We need to be clearer about our use of the term "nudge"

## Dunli Li

(Lecture Attendance, Lecture Capture and Academic Performance: Evidence from a First-Year Economics Course)

*Q: I've looked at similar data in the past and found that students that watch recorded material consistently during the semester do just as well as those who attend in person. It's the students that binge-watch right before the exam that do terribly. Have you distinguished between these two types of recording consumption?*

A: Great idea! Unfortunately we do not have data on when students view the lecture recordings and therefore we are unable to distinguish between these two types of viewers with the current dataset.

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*Q: One problem with this type of data is that we do not know if students actually watch the videos as opposed to click pay and go to sleep.*

A: I'm not sure what their motivation would be to do this, but it's also true they can sleep through class too. That said, it's probably true that a home environment is more distracting than a physical classroom environment. Students do sometimes succumb to temptation and self control issues. Very few people plan on watching an hour of cat videos :-)

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*Q: Can you tell if people watching lecture recording are different from those who attend? I found on ECHO360 that they were also the same students, checking back on things they missed in class. Not those who missed everything.*

A: Our data shows students who watch lecture recordings are a mixture of two types: check things they missed in class or watch everything due to class absence. But overall, we find there is a negative relationship between class attendance and lecturecast viewings.

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*Q: Is "Home" referencing country of origin, or their actual location (I can imagine that a student who is watching the online videos at +2 hr difference, while a student who is in a +13 hr time zone are fundamentally different).*

*A: In our data, "Home" refers to their fee status.*

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*Q: Do students know that we can see what they are doing in class and with recording? I have heard anecdotally that they are surprised to hear that we have so much data on what they do on VLE (Virtual Learning Environment aka Learning Management System (LMS)) and ECHO360 (the lecture recording system).*

*A: Yes, we told them, although it is not surprising to me if some students say they don't know.*

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*Q: You effectively have an interaction term in row 2 b/c attendance is a requirement of poll participation. Can you change row 1 to just "attendance w/o poll participation"? Unless of course students can participate in polls through the VLE/LMS?*

*A: There are two sets of regressions: attendance with or without polling participation controlled. When including both attendance and polling participation on the RHS of the regressions, the coefficient of attendance measures, holding polling participation (and other controls) constant, the effect of an increase of attendance rate on the performance, which essentially is the effect of "attendance w/o poll participation" (i.e. passive attendance).*

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*Q: You might have a OV problem here. How are you capturing 'hard work' or ability of students? Good students are likely to do a lot of everything ...*

*A: Yes, as mentioned in the slides, there might be some endogeneity issues, e.g, ability and attendance might be correlated; similarly polling participation and ability might be correlated. One way to capture ability might be to use students' prior GPA.*

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*Comment: Several attendees pointed out that there are tools that let you embed questions in videos after recording:*

- My college has "Kaltura Media Services" that lets you add questions into videos manually ex-post. So you'd upload the video and pick the times and then it'll pause the video and pose the question(s). It allows for multiple question types (including multiple choice) and integrates with the VLE/LMS.*
- I use CyberLink PowerDirector to cut/trim/edit videos.*



A: Thanks a lot for sharing this!

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*Comment: I'd like to see a comparison of performance and attendance between students in a class that had lecture capture and one that didn't to get around these MAJOR endogeneity issues*

A: Good idea, although this also needs to be set up carefully in order to get around the major endogeneity issues.

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*Q: Have you looked at English language learners? In my experience, those whose native language is not English (claim to) benefit more from the availability of lecture capture.*

A: Yes, I agree with you on this. Ideally we hope to have data on students' first language. However, in the current dataset, we only have variables to indicate whether students are home/EU/overseas students, which, to some extent, might capture the effect of native/non-native English speaking.

## General questions and comments

*Q: How do we ensure in an online format that the 2 URM students in a class of 60 have an opportunity to meet?*

A: One way is to assign students to small groups and make sure not to isolate URM students (or female students) in those groups. That is, make sure URM's and females have peers when they are doing group work inside or outside class. Jensen and Owen (JEE, 2001) report in "Pedagogy, gender, and interest in economics" that female students do better when there is gender balance in the groups.

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*Q: Always scared about gamification plans. It's about intrinsic motivation (to learn). I am not comfortable using extrinsic tools...long-term impact not likely high and little research on long-term*

A (Doug): I absolutely share your reticence about gamification for exactly those reasons and I don't use it in my own classes. On the other hand, different students are motivated by different things, and some students are very competitive. And gamification can make dry material more "fun." My worry is always that the less competitive students will put in \*less\* effort than they would otherwise, and these students are disproportionately female and students of color. That said, I haven't seen research that backs this up.

*Comment: I always love the interventions of our North American colleagues. WE (in the UK) are mostly are not allowed to do these randomised studies! Nor are we allowed give any marks for just doing something/participating.*

*Comment: I want to throw out a different/ pessimistic view and would be curious for thoughts from the presenters (and others): If education is mostly signaling (i.e. [Bryan Caplan's idea](#)), then trying to alter student behavior with nudges seems challenging given many students' goals are to get through college / get a degree and are not necessarily learning/ remembering what we teach them. It seems it is instead our responsibility to make classes relevant/challenging/fulfilling so students develop more intrinsic motivation. Easier said than done, clearly. An alternative view: when students are not studying "enough", that is a reasonable response.*

Response (Parama): Very good point! I think we have a lot of these and are not sure how to get them to engage more. Not sure whether/how nudges can help here.

Response (Rebecca): I agree with your point. I am also not sure how nudges can help given how many demands there are on college students

Response (Cloda): This is a useful check on ourselves. We need to make them want to engage with the material by understanding what motivates them today and for their future. Making it clear that an activity or material is relevant to them can be challenging but worth persevering with. My students sit up when I say, 'This is like an interview question at xxxx' for example.

Response (Eva): That's why I think our intervention of adding the commitment to yourself (motivation?) to complete a task, not just a simple nudge, is relevant.

Response: There is a TON of evidence that self control is an issue for this age cohort. If that is the case, a signal of age 18 self control might not be relevant for the age 25 worker. (And, of course, if the nudges are to mitigate self control issues, then it benefits the signal sender as well.)