

1

00:00:03.389 --> 00:00:12.120

EDUCAUSE Moderator, Jason Martin: Welcome to today's industry and Campus webinar Building Terracotta: A Platform for Conducting Randomized Controlled Experiments in the LMS.

2

00:00:12.929 --> 00:00:20.640

EDUCAUSE Moderator, Jason Martin: This is Jason Martin online event producer at EDUCAUSE. EDUCAUSE is pleased to welcome today's speakers Ben Motz, Aigner Picou,

3

00:00:20.880 --> 00:00:27.510

EDUCAUSE Moderator, Jason Martin: And Patty Wolfe. I'll introduce them in just a moment, but first let me give you a brief orientation on our sessions learning environment.

4

00:00:28.260 --> 00:00:35.310

EDUCAUSE Moderator, Jason Martin: We hope you'll join us and making the session interactive to open the chat please click on the chat icon at the bottom of the presentation window.

5

00:00:35.730 --> 00:00:48.270

EDUCAUSE Moderator, Jason Martin: You can use the chat to make comments share resources or to post questions to our presenters be sure to select panelists and attendees or everyone from the drop down menu to engage with all participants.

6

00:00:48.690 --> 00:00:55.470

EDUCAUSE Moderator, Jason Martin: will save some time for q & a at the end of the presentation, but we encourage you to type your questions into the chat throughout the webinar.

7

00:00:56.160 --> 00:01:07.170

EDUCAUSE Moderator, Jason Martin: If you have any technical issues, please direct a private message by selecting panelists in the chat drop down the session recording and slides will be archived later today on the EDUCAUSE website.

8

00:01:08.370 --> 00:01:17.190

EDUCAUSE Moderator, Jason Martin: And now let's turn to our presentation, one of the most urgent questions in education, research, is what kinds of learning activities, improve student success.

9

00:01:17.790 --> 00:01:25.770

EDUCAUSE Moderator, Jason Martin: Unfortunately, even with terabytes of data gushing out of our e learning systems, we will still have trouble in inferring what works.

10

00:01:26.190 --> 00:01:30.780

EDUCAUSE Moderator, Jason Martin: This is because relationships between learning activities and student success are just correlations.

11

00:01:31.440 --> 00:01:39.240

EDUCAUSE Moderator, Jason Martin: A learning activity might cause students to succeed, but it's also possible that successful students are just more likely to engage in the learning activity.

12

00:01:39.780 --> 00:01:44.670

EDUCAUSE Moderator, Jason Martin: to identify what works, we need more data, we need to be able to conduct experiments.

13

00:01:45.120 --> 00:01:54.240

EDUCAUSE Moderator, Jason Martin: In today's session we will describe our vision for enabling teachers and researchers to easily run experiments in their classes and will unveil Terracotta.

14

00:01:54.660 --> 00:02:02.670

EDUCAUSE Moderator, Jason Martin: an experiment builder that integrates with the canvas learning management system, the product of a collaboration between Unicon and Indiana University.

15

00:02:03.240 --> 00:02:17.220

EDUCAUSE Moderator, Jason Martin: Today's speakers are Ben Motz, Research Scientist at Indiana University, Aigner Picou, a Program Director at the Learning Agency Lab, and Patty Wolfe, Senior Director Applications, Integrations and Data at Unicon.

16

00:02:17.730 --> 00:02:27.990

EDUCAUSE Moderator, Jason Martin: And with that let's begin today's industry and Campus webinar Building Terracotta: A Platform for Conducting Randomized Controlled Experiments in the LMS. Ben, over to you.

17

00:02:28.920 --> 00:02:38.160

Ben Motz - IU (he rhymes w/ boats): Thank you so much Jason and thank you all for joining it's such a pleasure to be here thanks to unicom for kind of giving this platform for us to share with you terracotta.

18

00:02:38.730 --> 00:02:46.260

Ben Motz - IU (he rhymes w/ boats): So we're going to go ahead and get started with a few polls, some questions to kind of get a feeling for each other and for the purpose of today.

19

00:02:46.650 --> 00:02:53.040

Ben Motz - IU (he rhymes w/ boats): So Jason if you could go ahead and activate the first poll, the question that i'd like you to respond with here is.

20

00:02:53.400 --> 00:03:07.170

Ben Motz - IU (he rhymes w/ boats): Really to rate your agreement on a liquored scale with the statement learning data are valuable for improving student outcomes and student success, so you could write this from strongly disagree to strongly agree and in a moment we'll share with you our results.

21

00:03:36.270 --> 00:03:45.570

Ben Motz - IU (he rhymes w/ boats): Okay, here they come, I thought, maybe this pattern would would come out this is this being an educated audience, after all, so.

22

00:03:46.260 --> 00:03:58.710

Ben Motz - IU (he rhymes w/ boats): There were 12% of a six out of the 50 respondents who strongly disagreed i'm anticipating why you're going to say this, but i'm most of us 60% of respondents 30 out of 50 strongly agreed the remaining 22%.

23

00:03:59.220 --> 00:04:10.050

Ben Motz - IU (he rhymes w/ boats): Either agreed or neither agree or disagree so there's a pretty heavy slant in the direction of US agreeing that the learning data which as Jason mentioned before gushing out of our systems.

24

00:04:10.380 --> 00:04:17.760

Ben Motz - IU (he rhymes w/ boats): are valuable for improving student outcomes and student success let's go on to one more question, but I think is going to drive this home.

25

00:04:18.150 --> 00:04:27.990

Ben Motz - IU (he rhymes w/ boats): So if you could go to the next slide patty and Jason if you could bring up this next poll, so the statement i'd like you to rate your agreement with is, I have a clear understanding.

26

00:04:28.440 --> 00:04:44.220

Ben Motz - IU (he rhymes w/ boats): of how learning data can have a practical impact on student outcomes in the student success, I want you to imagine yourself like, if you agree with this potentially even being called on this webinar to articulate how this how this impact can come from these learning data.

27

00:05:04.830 --> 00:05:05.970

Ben Motz - IU (he rhymes w/ boats): A few more seconds.

28

00:05:12.660 --> 00:05:18.090

Ben Motz - IU (he rhymes w/ boats): Question i'd like you to be asking yourselves as we're about to see the results is, do you think there's going to be less agreement with this statement.

29

00:05:21.870 --> 00:05:31.890

Ben Motz - IU (he rhymes w/ boats): And Sure enough, whereas previously 60% of a solid strongly agreed that there's clear value of these learning data for improving student outcomes and student success.

30

00:05:32.400 --> 00:05:39.360

Ben Motz - IU (he rhymes w/ boats): It seems to be the case that we're less skewed and skewed positively in terms of our understanding of how we can do so.

31

00:05:40.320 --> 00:05:48.540

Ben Motz - IU (he rhymes w/ boats): So that's really what today's talk is going to be about and that's to explore the methods for taking what's going on and what data are going into our.

32

00:05:48.780 --> 00:05:54.210

Ben Motz - IU (he rhymes w/ boats): systems and translating into some sort of value for understanding how we could improve student outcomes and student success.

33

00:05:54.930 --> 00:06:02.550

Ben Motz - IU (he rhymes w/ boats): patty if you go to the next slide that is really the goal so across all applications of education, research and.

34

00:06:03.060 --> 00:06:09.360

Ben Motz - IU (he rhymes w/ boats): Learning data utilization and even to some extent, like the institutions where we're we're we're appointed.

35

00:06:09.720 --> 00:06:15.570

Ben Motz - IU (he rhymes w/ boats): I think that everybody has a consensus that a reasonable goal would be to understand and optimize student success in these environments.

36

00:06:16.170 --> 00:06:21.360

Ben Motz - IU (he rhymes w/ boats): That understanding usually involves answering questions such as the ones that i've included here so.

37

00:06:21.600 --> 00:06:29.160

Ben Motz - IU (he rhymes w/ boats): What classroom practices, result in better outcomes what instructional designs increase engagement what materials improve performance what interventions boost grades what.

38

00:06:29.490 --> 00:06:36.120

Ben Motz - IU (he rhymes w/ boats): X causes why there's a template here what thing could we do to improve the outcomes in our student population.

39

00:06:36.660 --> 00:06:43.410

Ben Motz - IU (he rhymes w/ boats): And it's worth saying as a psychological scientist it's well known that correlation in a coral correlation analysis correlation all analyses.

40

00:06:43.740 --> 00:06:49.860

Ben Motz - IU (he rhymes w/ boats): are not particularly well suited to answer these questions we are swimming in the sea of data that you see in the background of the slide here.

41

00:06:50.130 --> 00:06:54.660

Ben Motz - IU (he rhymes w/ boats): Where we're surrounded really by a data about what students are doing it, and what outcomes they might have.

42

00:06:55.020 --> 00:07:01.380

Ben Motz - IU (he rhymes w/ boats): But the correlation analysis might only tell us that students who are successful tend to engage in certain patterns of activity.

43

00:07:01.920 --> 00:07:08.910

Ben Motz - IU (he rhymes w/ boats): If we really want to understand what works what things, an institution or a teacher or a success coach or an advisor could do to improve student success.

44

00:07:09.540 --> 00:07:20.430

Ben Motz - IU (he rhymes w/ boats): The most compelling method is to conduct an experiment, so the question that i'm presenting to you today is how can digital learning platform support experimental research and i've got a solution for you, the solution is on the next slide.

45

00:07:21.480 --> 00:07:27.330

Ben Motz - IU (he rhymes w/ boats): From little things, the solution is terracotta or at least I should say one solution that I think we're excited to share with you is Terra cotta.

46

00:07:28.200 --> 00:07:35.400

Ben Motz - IU (he rhymes w/ boats): And today in the process of describing what work I have done an onion and patty what we've done will be to kind of.

47

00:07:35.790 --> 00:07:43.590

Ben Motz - IU (he rhymes w/ boats): lay out for you how terracotta provides a solution to this question of how the learning data can actually support student success and outcomes, if you go to the next slide.

48

00:07:43.980 --> 00:07:50.340

Ben Motz - IU (he rhymes w/ boats): Just to give you a heads up about who is all here today, my name is Ben moats as Jason said i'm a research scientist at indiana university.

49

00:07:50.670 --> 00:07:55.020

Ben Motz - IU (he rhymes w/ boats): I direct the E learning research and practice lab and i'm also the person who's running terracotta right now.

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00:07:55.890 --> 00:07:59.850

Ben Motz - IU (he rhymes w/ boats): i'm joined i'm so excited to be joined by on yay from learning agency lab.

51

00:08:00.090 --> 00:08:06.510

Ben Motz - IU (he rhymes w/ boats): she'll be sharing a little bit more about the theoretical background and other activities that are going on as it relates to experimentation and learning environments.

52

00:08:06.780 --> 00:08:18.570

Ben Motz - IU (he rhymes w/ boats): And patty who has been the mastermind from unit con who's been able to help us realize this vision of a tool that would actually make experimentation in student learning environments a possibility, so on here, let me hand it off to you.

53

00:08:20.850 --> 00:08:24.360

Aigner Picou - The Learning Agency Lab: Thanks and Thank you everyone for joining us today.

54

00:08:24.990 --> 00:08:25.590

and

55

00:08:26.820 --> 00:08:38.430

Aigner Picou - The Learning Agency Lab: We get the next slide so the development of Terra cotta was informed by learning engineering principles, so what exactly is learning engineering and how can we use it.

56

00:08:38.910 --> 00:08:52.200

Aigner Picou - The Learning Agency Lab: To me, learning engineering is at the intersection of the learning sciences data and technology, specifically, how can we use all three of those to propose tasks and implement solutions that help to improve learning.

57

00:08:52.680 --> 00:09:05.310

Aigner Picou - The Learning Agency Lab: We don't really know enough about how people learn and so by testing theories running experiments using data we can deepen our understanding of learning and take some of the guesswork out of education.

58

00:09:07.980 --> 00:09:09.840

Aigner Picou - The Learning Agency Lab: So could I have an exploit.

59

00:09:11.910 --> 00:09:16.320

Aigner Picou - The Learning Agency Lab: Learning engineering can't happen in a bubble, we have to include teachers.

60

00:09:16.890 --> 00:09:22.890

Aigner Picou - The Learning Agency Lab: In some of my work with teachers i've heard that the idea of conducting research in the classroom can seem daunting.

61

00:09:23.160 --> 00:09:29.370

Aigner Picou - The Learning Agency Lab: Some teachers feel like they don't know what to study if they may feel like they don't have enough time to run an experiment.

62

00:09:29.940 --> 00:09:34.200

Aigner Picou - The Learning Agency Lab: But in many ways, teachers are already conducting experiments in the classroom.

63

00:09:34.950 --> 00:09:42.480

Aigner Picou - The Learning Agency Lab: All the time so when a teacher tries to new intervention or you know introduces a new learning platform to us with their students.

64

00:09:43.050 --> 00:09:47.100

Aigner Picou - The Learning Agency Lab: If the teacher goes to a conference and here's about a new approach and then tries that out.

65

00:09:47.490 --> 00:09:54.630

Aigner Picou - The Learning Agency Lab: Every day teachers are studying the students assessing their individual needs and then adjusting their approach to meet those needs.

66

00:09:55.140 --> 00:10:07.860

Aigner Picou - The Learning Agency Lab: And that cycle just continues over and over again, and that in itself is research, so if we can move towards formalizing that research making tools and resources available.

67

00:10:08.160 --> 00:10:16.260

Aigner Picou - The Learning Agency Lab: That teachers can run experiments easily and then also collect data on the students, it would be a powerful ways to improve our understanding of learning.

68

00:10:17.640 --> 00:10:23.730

Aigner Picou - The Learning Agency Lab: This was part of the idea of developing the teacher run experiment network which we started at the lab.

69

00:10:24.150 --> 00:10:31.830

Aigner Picou - The Learning Agency Lab: We started with some major goals one was just to leverage the knowledge and expertise of the people who worked most closely with students.

70

00:10:32.370 --> 00:10:40.740

Aigner Picou - The Learning Agency Lab: A lot of educational research happens outside of the context of the classroom and context is so important and also without the involvement of teachers.

71

00:10:41.160 --> 00:10:48.750

Aigner Picou - The Learning Agency Lab: So we wanted to you know, we want to see that changing and this program was sort of a pilot to see how we could do that.

72

00:10:49.500 --> 00:10:57.570

Aigner Picou - The Learning Agency Lab: Secondly, where we were thinking about democratizing the research process so expanding ideas about who gets to ask the research questions.

73

00:10:57.930 --> 00:11:09.360

Aigner Picou - The Learning Agency Lab: And also thinking about reducing the need to translate research findings from the Academy, to the classroom if teachers are running small experiments in the classroom and collecting their own data.

74

00:11:09.750 --> 00:11:16.620

Aigner Picou - The Learning Agency Lab: They can quickly act on their research findings make changes and then continue these small cycles of research as time goes on.

75

00:11:17.880 --> 00:11:32.670

Aigner Picou - The Learning Agency Lab: Finally, we were interested in building teacher researchers communities, we can learn a lot from teachers and just from providing space for teachers to contribute three third communities, so how can we sort of just bring teachers in more.

76

00:11:35.190 --> 00:11:41.040

Aigner Picou - The Learning Agency Lab: To give an overview of how the teacher and experiment, the teacher run experiment network work.

77

00:11:41.790 --> 00:11:53.370

Aigner Picou - The Learning Agency Lab: Was that we partnered with pH plus to help us recruit teachers, they had to apply for the program but we didn't require any sort of research experience they just needed to have an interest in.

78

00:11:53.640 --> 00:11:58.740

Aigner Picou - The Learning Agency Lab: developing research skills and then a desire to contribute to the existing body of research.

79

00:11:59.550 --> 00:12:09.510

Aigner Picou - The Learning Agency Lab: We chose to support teachers in designing randomized control trial or ICT is some did other kinds of studies, but we tried to steer them in the direction of our CTS.

80

00:12:10.380 --> 00:12:20.850

Aigner Picou - The Learning Agency Lab: Just because it can be used to study, just like the effects of a minor change so a different explanation you know, does that change how students understand what they're learning.

81

00:12:21.390 --> 00:12:28.440

Aigner Picou - The Learning Agency Lab: We had a range of K through 12 teachers to talk different subjects and each teacher designed their own individual experiments.

82

00:12:29.100 --> 00:12:39.540

Aigner Picou - The Learning Agency Lab: So, for example, one teacher looked into autonomy and note taking his question was this giving students agency and how they take notes affects how they retain information.

83

00:12:40.770 --> 00:12:49.350

Aigner Picou - The Learning Agency Lab: You know if you tell students, they have to take notes in this specific format versus if you give them a range of options and let them take notes the way that they want to.

84

00:12:49.950 --> 00:13:03.300

Aigner Picou - The Learning Agency Lab: Another teacher look that student perceptions on race, and he actually was a biology teacher, so he was looking at if he taught about the biology of skin color How does that affect a student's perception of race.

85

00:13:04.830 --> 00:13:13.200

Aigner Picou - The Learning Agency Lab: Overall, the outcomes were great even for teachers who got results were based on no difference between their experimental and control group.

86

00:13:13.680 --> 00:13:22.830

Aigner Picou - The Learning Agency Lab: They still found it really valuable to have real data that told them, I tried this thing and it actually didn't change anything so maybe i'll try something else next time.

87

00:13:23.460 --> 00:13:31.320

Aigner Picou - The Learning Agency Lab: For some teachers who tested out theories that they already had running an experiment and having beta confirm those.

88

00:13:31.980 --> 00:13:38.220

Aigner Picou - The Learning Agency Lab: One teacher was that asynchronous and synchronous instruction and how that affected learning.

89

00:13:38.640 --> 00:13:50.790

Aigner Picou - The Learning Agency Lab: and students have three modes of instruction that they could instruction that they could choose from one was synchronous online instruction one was synchronous in person instruction and the other was asynchronous soundscape.

90

00:13:51.480 --> 00:14:02.760

Aigner Picou - The Learning Agency Lab: She suspected that synchronous instruction would be the most effective, but she was shocked by just how different the outcomes work for her asynchronous students versus a synchronous students.

91

00:14:03.180 --> 00:14:12.720

Aigner Picou - The Learning Agency Lab: So the gap for just what much larger she had one example of a student who had done all of his lessons self paced and he's poured 100% on all of the lessons.

92

00:14:13.110 --> 00:14:30.900

Aigner Picou - The Learning Agency Lab: And then, when he came into the class and took the quiz he four to zero, when she sat down with him to go through the concept, she realized that he actually just had no grasp on anything he has done online, so this is just one example, but we saw lots of results, like this across the board.

93

00:14:32.700 --> 00:14:41.850

Aigner Picou - The Learning Agency Lab: There were some challenges, especially running this program during coven it, I mean we have so many teachers who had to change their experiments as.

94

00:14:43.020 --> 00:14:52.140

Aigner Picou - The Learning Agency Lab: It also just really highlighted the need for better technology and specifically like better technology around running experiments and collecting data on students.

95

00:14:52.800 --> 00:15:01.710

Aigner Picou - The Learning Agency Lab: For most of the experiments that teachers ran they use the combination of like Google sheets and Google form, so it was very a DIY.

96

00:15:02.940 --> 00:15:16.830

Aigner Picou - The Learning Agency Lab: Data collection and we were really excited to partner with Ben as he was developing terracotta because it's going to support teachers in running these kinds of experiments and just make it way simpler across the board.

97

00:15:18.090 --> 00:15:31.440

Aigner Picou - The Learning Agency Lab: And he works with some of the teachers in the network to run some user testing so we're hopeful that, as to how to develop it can help to promote more rigorous positive research and lower that barrier to entry for teachers specifically.

98

00:15:35.070 --> 00:15:44.700

Ben Motz - IU (he rhymes w/ boats): So, at the same time that the teacher run experiments or network i'm sorry teacher run experiment network is experiencing the difficulty of getting teachers to create experiments in their classrooms.

99

00:15:45.270 --> 00:15:52.740

Ben Motz - IU (he rhymes w/ boats): Education researchers, such as myself for doing exactly the same thing and experiencing exactly the same challenges, so what I have here are a few quotes.

100

00:15:53.190 --> 00:16:00.060

Ben Motz - IU (he rhymes w/ boats): of articles that I found especially I don't know compelling in terms of their ability to describe the challenges that a researcher might face.

101

00:16:00.390 --> 00:16:05.910

Ben Motz - IU (he rhymes w/ boats): And going out into an education setting and trying to randomly assign students to have different kinds of educational experiences.

102

00:16:06.330 --> 00:16:13.680

Ben Motz - IU (he rhymes w/ boats): The requisite resources are generally far in excess of what most education researchers could hope to a mass, in the absence of considerable extramural funding.

103

00:16:13.920 --> 00:16:19.650

Ben Motz - IU (he rhymes w/ boats): Consequently it's, also the case that people have observed that education researchers oftentimes elect to conduct.

104

00:16:19.920 --> 00:16:32.670

Ben Motz - IU (he rhymes w/ boats): more manageable less ambitious and less carefully controlled classroom based investigations, such that the difficulty of running experiments and classrooms is sometimes an obstacle, not just to the method, but also to the rigor and the outcomes that might be.

105

00:16:33.540 --> 00:16:36.360

Ben Motz - IU (he rhymes w/ boats): necessary and also desperately needed from education.

106

00:16:37.980 --> 00:16:42.000

Ben Motz - IU (he rhymes w/ boats): So this is something that i've lived and experienced as a researcher.

107

00:16:43.110 --> 00:16:50.070

Ben Motz - IU (he rhymes w/ boats): My reason to extra incense has been to try and overcome these barriers to try and say okay if there's a burden some amount of technical knowledge.

108

00:16:50.310 --> 00:16:57.690

Ben Motz - IU (he rhymes w/ boats): How can we overcome that barrier, so that people who don't have technical knowledge about how to program an experiment could nevertheless be able to execute one in the classes.

109

00:16:58.050 --> 00:17:06.420

Ben Motz - IU (he rhymes w/ boats): You go to the next slide some of my forays in this are much like what is it like the DIY solution so in 2015 if you could click to the next one.

110

00:17:06.960 --> 00:17:15.420

Ben Motz - IU (he rhymes w/ boats): We tried running experiments with call tricks to some some success, one of the challenges with quality tricks was that it separated students from their.

111

00:17:15.900 --> 00:17:23.880

Ben Motz - IU (he rhymes w/ boats): place where they were actually doing their coursework like in a classroom or in a teacher's website, or something and move them into a survey platform.

112

00:17:24.150 --> 00:17:30.180

Ben Motz - IU (he rhymes w/ boats): That might have felt kind of strange to begin with, so, while it got the job done it definitely wasn't optimal in terms of giving students.

113

00:17:30.840 --> 00:17:36.420

Ben Motz - IU (he rhymes w/ boats): Actual educational experience we click to the next one, we also tried just building one ourselves using javascript.

114

00:17:37.110 --> 00:17:45.810

Ben Motz - IU (he rhymes w/ boats): same kind of problem, though, that we found ourselves kind of building something that was artificial in the didn't quite have the feeling of being an education, research, platform.

115

00:17:46.170 --> 00:17:53.280

Ben Motz - IU (he rhymes w/ boats): There are education i'm sorry I should say there are behavioral research platforms out there that do abstract some of these things, so if you clicked on the next one.

116

00:17:53.550 --> 00:18:01.380

Ben Motz - IU (he rhymes w/ boats): we've explored using js site, which is a platform for building web based experiments and then administering them to students who are enrolled in classes.

117

00:18:01.890 --> 00:18:09.090

Ben Motz - IU (he rhymes w/ boats): Still same problem it's hard to really get that feeling of doing your coursework in the place where you'd normally do your coursework.

118

00:18:09.600 --> 00:18:13.620

Ben Motz - IU (he rhymes w/ boats): In a place where it's synthetic where we've built something special just for a research experience.

119

00:18:14.220 --> 00:18:22.530

Ben Motz - IU (he rhymes w/ boats): And we've done the obvious other thing as well, so in 2021 we recently published the many classes, study and the many classes study was wildly ambitious it took.

120

00:18:23.040 --> 00:18:30.360

Ben Motz - IU (he rhymes w/ boats): an actual property of canvas and manipulated the property of the canvas learning management system for different types of students, but when we had to do to get that done.

121

00:18:30.720 --> 00:18:44.100

Ben Motz - IU (he rhymes w/ boats): was to actually manually one by one click on each individual student and drag them into different sections within the campus learning management system and with over 3000 students in the study it was absurd it's it's manual work, but nobody should ever have to do again.

122

00:18:45.150 --> 00:18:56.190

Ben Motz - IU (he rhymes w/ boats): What we really need is a better solution so with patty and with my partnership with kanye we have put together terracotta if you go to the next slide terracotta is really the thing that solves this.

123

00:18:56.910 --> 00:19:00.180

Ben Motz - IU (he rhymes w/ boats): What we need from Terra cotta is, we need to experimentation, to be easier.

124

00:19:00.780 --> 00:19:06.960

Ben Motz - IU (he rhymes w/ boats): So that it can be more common, so that it's not the case that somebody has to go through all these different technologies to be able to get an experiment done.

125

00:19:07.560 --> 00:19:13.080

Ben Motz - IU (he rhymes w/ boats): Also, so that we can then have bigger impacts that go outside the scope of what might be convenient to be able to run to the run.

126

00:19:13.770 --> 00:19:17.850

Ben Motz - IU (he rhymes w/ boats): Another interesting property of difficulties of running experiments is that.

127

00:19:18.630 --> 00:19:23.880

Ben Motz - IU (he rhymes w/ boats): If you're running an experiment only in the place where it's convenient or where you have the technical know how to get something done.

128

00:19:24.180 --> 00:19:37.440

Ben Motz - IU (he rhymes w/ boats): Then you wind up really biasing the results toward a particular type of population by making experimentation easier by building a platform that can support experimentation at scale and then we can also inherently make experimentation more diverse, so we can include.

129

00:19:38.550 --> 00:19:47.520

Ben Motz - IU (he rhymes w/ boats): participant populations that would otherwise be excluded from the conveniences of where it's easy to run experiments okay terracotta gets the stuff done sorry I missed slides switch so.

130

00:19:48.240 --> 00:19:59.370

Ben Motz - IU (he rhymes w/ boats): terracotta is actually a portmanteau not an acronym it's a portmanteau for tool for education and research with randomized control trials and the basic idea is that it's an experiment builder in the learning management system.

131

00:20:00.180 --> 00:20:05.130

Ben Motz - IU (he rhymes w/ boats): That achieves a number of different features and the feature list is growing kind of as the hour goes by nowadays.

132

00:20:06.090 --> 00:20:15.210

Ben Motz - IU (he rhymes w/ boats): First, creates different variations of a single learning management system assign it does the simplest thing that you'd want to do an experiment, where you take what you assigned to a student.

133

00:20:15.570 --> 00:20:25.650

Ben Motz - IU (he rhymes w/ boats): and make it so that it's differentiated for different experimental conditions so some students get one kind of a condition other students get another condition and those amount two different experiences have been assigned.

134

00:20:26.340 --> 00:20:31.530

Ben Motz - IU (he rhymes w/ boats): You randomly assigned students to these different versions, it also enables within subject crossovers.

135

00:20:32.130 --> 00:20:41.820

Ben Motz - IU (he rhymes w/ boats): This is worth kind of like stopping and highlighting for a moment, because, to the extent that there's any concern about the ethics of experimentation My guess is that within subject crossover solves that.

136

00:20:42.840 --> 00:20:47.970

Ben Motz - IU (he rhymes w/ boats): In a between subject experiment, where we say you students over here get one condition use students over here get another condition.

137

00:20:48.390 --> 00:20:56.970

Ben Motz - IU (he rhymes w/ boats): It might be the case that condition a is better than condition b and thus students who got condition a might be I don't know getting some advantage that students and conditions we didn't get.

138

00:20:57.630 --> 00:21:06.660

Ben Motz - IU (he rhymes w/ boats): If we do it within such a crossover, then what happens is all students get all conditions just different times of the Semester so some students get a then B other students get b then a.

139

00:21:06.930 --> 00:21:15.600

Ben Motz - IU (he rhymes w/ boats): And then halfway through the Semester it switches so in this way we equate what the experiment, the treatment as across students, so that we don't have any sort of possibility of bias.

140

00:21:16.470 --> 00:21:29.610

Ben Motz - IU (he rhymes w/ boats): turns out also incorporates grades from the LM s as experiment outcomes, so if you want to know how the assignment affected performance on the final exam terracotta allows you to pull those final exam scores into the experiment to measure as outcomes of the experiment.

141

00:21:30.630 --> 00:21:34.410

Ben Motz - IU (he rhymes w/ boats): It also does additional protections for students so for one it collects informed consent.

142

00:21:34.950 --> 00:21:40.200

Ben Motz - IU (he rhymes w/ boats): Anybody who's ever run an experiment in a classroom knows the consent, can be a tricky process, because the teacher is in a position.

143

00:21:40.740 --> 00:21:44.280

Ben Motz - IU (he rhymes w/ boats): of authority, they might actually coerce students into consenting against their wishes.

144

00:21:44.610 --> 00:21:50.220

Ben Motz - IU (he rhymes w/ boats): By running informed consent and terracotta we kind of eliminate that issue students can respond to the informed consent question.

145

00:21:50.490 --> 00:21:53.820

Ben Motz - IU (he rhymes w/ boats): without having any sort of concern for whether the teacher will know what their responses.

146

00:21:54.210 --> 00:22:07.020

Ben Motz - IU (he rhymes w/ boats): And it also if somebody doesn't consent takes them out of the experiment so we're we allow the teacher or the researcher to export data from the experiment that's de identified and that only includes people who can send it to participate if consent is applied.

147

00:22:11.400 --> 00:22:25.920

Ben Motz - IU (he rhymes w/ boats): So I want to go to the next slide everything that I talked about sorry our next poll everything that I talked about so far is kind of interesting in that it describes the process of getting tools for analytics for using data into the hands of teachers.

148

00:22:27.150 --> 00:22:34.770

Ben Motz - IU (he rhymes w/ boats): That might not always be how it is nowadays so i'm curious to ask, right now, who, on your campus has the most access to students learning data.

149

00:22:35.940 --> 00:22:41.040

Ben Motz - IU (he rhymes w/ boats): will ask you to make a single choice who's the who's the unit that actually has the most access to students like me.

150

00:22:42.660 --> 00:22:43.290

Ben Motz - IU (he rhymes w/ boats): or roller.

151

00:22:57.120 --> 00:22:58.380

Ben Motz - IU (he rhymes w/ boats): give it a couple more seconds here.

152

00:23:12.690 --> 00:23:18.930

Ben Motz - IU (he rhymes w/ boats): Okay, so maybe it's just the edge across audience again but yeah this is kind of what one might have guessed that.

153

00:23:19.320 --> 00:23:23.070

Ben Motz - IU (he rhymes w/ boats): For the most part the learning data that we're talking about a sequestered in it.

154

00:23:23.490 --> 00:23:35.340

Ben Motz - IU (he rhymes w/ boats): So it's the case that it units have access to the students learning data but they're not necessarily the people who are especially poised to do something with it, those are the teachers and there seems to be a gap.

155

00:23:35.880 --> 00:23:43.050

Ben Motz - IU (he rhymes w/ boats): there's a gap in terms of data access and to the extent that we might want to build a tool that gives instructors access to student learning data.

156

00:23:43.410 --> 00:23:48.690

Ben Motz - IU (he rhymes w/ boats): there's a number of different integrations that needs to take place so there's basically a bridge that needs to be made.

157

00:23:48.930 --> 00:23:58.680

Ben Motz - IU (he rhymes w/ boats): Between the learning activity and the people who would potentially be able to do something with the data, the teachers and to kind of explain that and how terracotta solves that angle i'm going to turn it over to penny.

158

00:24:03.450 --> 00:24:04.590

Patty Wolfe - Unicon: Great thanks, then.

159

00:24:05.370 --> 00:24:10.830

Patty Wolfe - Unicon: So you know kind of had the opportunity to partner with I you to design and build terracotta.

160

00:24:11.190 --> 00:24:20.670

Patty Wolfe - Unicon: And really address some of the challenges that Ben had identified earlier in the presentation, with respect to some of the technology challenges that we were working to overcome.

161

00:24:20.970 --> 00:24:28.380

Patty Wolfe - Unicon: So we partnered with our you to build an application that's based on standards interoperability to prepare for expansion and growth.

162

00:24:29.400 --> 00:24:36.000

Patty Wolfe - Unicon: This is one of your specialties we work with our clients to collect normalize and visualize data.

163

00:24:36.480 --> 00:24:45.120

Patty Wolfe - Unicon: We want our customers to get more out of the data signal signals they're collecting today and help them identify and generate new data signals.

164

00:24:45.870 --> 00:24:53.820

Patty Wolfe - Unicon: With terracotta we built that it is an open source application, based on the Apache to dotto Open Source license.

165

00:24:54.330 --> 00:25:09.060

Patty Wolfe - Unicon: we've incorporated interoperability using IMS standard, such as caliper lci one dot three are built into the application right now is integrated with canvas and then we'll demonstrate that as part as part of his DEMO of Terra cotta.

166

00:25:10.320 --> 00:25:14.010

Patty Wolfe - Unicon: And then, it is also built on top of an aws infrastructure.

167

00:25:15.930 --> 00:25:31.890

Patty Wolfe - Unicon: And with this application, one of the key things as as both Ben and anya alluded to, is we really wanted to make sure that we empower teachers and students to learn from expertise in the classroom and push data collection and review down to that lowest level on campus.

168

00:25:35.280 --> 00:25:43.200

Patty Wolfe - Unicon: So, if we look at our project approach our effort with a PLC that was going to be demonstrated today, it was a quick three months.

169

00:25:43.710 --> 00:25:55.980

Patty Wolfe - Unicon: From project initiation all the way to development and release of the final PLC we partnered with Ben and his team to understand what that product vision was.

170

00:25:56.490 --> 00:26:08.520

Patty Wolfe - Unicon: We worked off a base of wire frames and then created that into working software, we collected, a team of resources on the unicon side that included back end developers front end developers.

171

00:26:09.060 --> 00:26:27.150

Patty Wolfe - Unicon: QA experts to go through and through the various seven short sprint's that we went through to develop the PLC today, those that folks that are on the phone from an IT perspective terracotta is a Java based back end the front end technology.

172

00:26:30.480 --> 00:26:32.610

Patty Wolfe - Unicon: And then i'll turn it over to you for a DEMO.

173

00:26:33.000 --> 00:26:33.360

Ben Motz - IU (he rhymes w/ boats): For you guys.

174

00:26:35.430 --> 00:26:36.300

Ben Motz - IU (he rhymes w/ boats): i'm going to share my screen.

175

00:26:43.980 --> 00:26:50.940

Ben Motz - IU (he rhymes w/ boats): A couple nights ago I was thinking about what kind of experiment to share and I figured that something that is hot off the press would be especially useful.

176

00:26:51.390 --> 00:27:04.470

Ben Motz - IU (he rhymes w/ boats): Just as an example of like it's nimble ability to run different types of experiments, so I looked up the journal of applied research and memory and cognition one of my favorites jar MAC I don't know if any of you follow Dr MAC but.

177

00:27:05.220 --> 00:27:12.480

Ben Motz - IU (he rhymes w/ boats): On September 17 a pretty cool article came out by Sarah talbert, how does the type of expected evaluation impact students self regulated learning.

178

00:27:12.930 --> 00:27:21.960

Ben Motz - IU (he rhymes w/ boats): So I read the article and i've implemented a version of it it's definitely not as Sarah might have but it gets the job done for showing you how something might actually work in terracotta.

179

00:27:22.620 --> 00:27:28.290

Ben Motz - IU (he rhymes w/ boats): i've got here test course in canvas and we've got terracotta integrated in the Left navigation.

180

00:27:28.770 --> 00:27:35.430

Ben Motz - IU (he rhymes w/ boats): And if I click on it, it opens up in a new window right now, and I can click on this expected evaluation experiment that i've put together.

181

00:27:36.360 --> 00:27:42.420

Ben Motz - IU (he rhymes w/ boats): i'm not going to show you the process of building an experiment My guess is that there aren't very many experimenters yet in the room.

182

00:27:43.080 --> 00:27:50.280

Ben Motz - IU (he rhymes w/ boats): But instead I want you to trust me that there's a relatively detailed experiment builder setup it's actually modeled on.

183

00:27:50.820 --> 00:28:00.090

Ben Motz - IU (he rhymes w/ boats): The evidence to incite coach that would take us a teacher or a researcher through a sequence of design decisions that will ultimately arrive at an experiment set up as we've got one now so.

184

00:28:00.750 --> 00:28:12.090

Ben Motz - IU (he rhymes w/ boats): After having gone through that building process i've got a design setup, this is the title of the experiment experiment evaluation experiment and we've got two different conditions, this is the key thing to kind of highlight about certain groups work.

185

00:28:13.170 --> 00:28:22.200

Ben Motz - IU (he rhymes w/ boats): When you're about to do an activity, when a learning activity, you could be told that that learning activity is going to be beneficial to your performance on I don't know the final exam.

186

00:28:22.650 --> 00:28:34.200

Ben Motz - IU (he rhymes w/ boats): I don't say the final exam is a multiple choice test, so this is not very socially demanding like you would be evaluated on your learning from an activity just by your own individual performance bubbling and multiple choice exam.

187

00:28:34.710 --> 00:28:39.000

Ben Motz - IU (he rhymes w/ boats): Alternatively, you could be told that that learning experience that you're about to engage in.

188

00:28:39.270 --> 00:28:46.380

Ben Motz - IU (he rhymes w/ boats): is going to help you prepare for a very socially demanding evaluation so, for example, maybe you're going to give a group presentation at the end of the Semester.

189

00:28:46.650 --> 00:28:57.150

Ben Motz - IU (he rhymes w/ boats): And the learning activity here about engagement is going to be a part of what you're going to have to teach to your peers, so this would be a very socially demanding evaluation that would be downstream from a learning activity in both situations, the.

190

00:28:57.840 --> 00:29:07.020

Ben Motz - IU (he rhymes w/ boats): Learning activity is the same, the real difference is whether somebody expects that they'll be evaluated on their learning from that activity and especially demanding way or not socially demanding way.

191

00:29:07.590 --> 00:29:14.070

Ben Motz - IU (he rhymes w/ boats): In terracotta what you can do is you can set up one of these conditions as being the default that default treatment is what somebody would experience.

192

00:29:14.460 --> 00:29:21.060

Ben Motz - IU (he rhymes w/ boats): If there was kind of business as usual and what actually happens behind the scenes, is that students who don't consent to participate in an experiment.

193

00:29:21.420 --> 00:29:25.170

Ben Motz - IU (he rhymes w/ boats): will be assigned to that default condition, so they they're not randomly assigned to anything.

194

00:29:25.590 --> 00:29:33.750

Ben Motz - IU (he rhymes w/ boats): This is kind of what we would consider business as usual, but that's not the control condition because students who don't participate or who don't consent to participate or excluded from any data or.

195

00:29:34.740 --> 00:29:45.870

Ben Motz - IU (he rhymes w/ boats): We can set up things as within the subject designers of between subjects design, as I told you within subject crossovers can have ethical benefits, but today, just to make things simple i've set it up as a between such site so everybody only gets one treat.

196

00:29:46.800 --> 00:29:56.280

Ben Motz - IU (he rhymes w/ boats): The participants become participants by filling out an informed consent statement i'm sorry not by filling they'll they'll read the informed consent statement and then click to agree or not agree to consent to participate.

197

00:29:56.580 --> 00:30:07.020

Ben Motz - IU (he rhymes w/ boats): And this experiment that i've put together has one assignment which we're just calling self paced learning activity and it has two different versions either a socially demanding version or a non socially demanding version, the default.

198

00:30:07.470 --> 00:30:18.060

Ben Motz - IU (he rhymes w/ boats): And here's one could edit these and play around i've got one student in this course site and that student happens to be me i've already given my consent oh there's also the tests.

199

00:30:19.080 --> 00:30:28.260

Ben Motz - IU (he rhymes w/ boats): And also, you know what it's like from a student's perspective to participate in the self paced learning activity, after having been randomly assigned to one of these different conditions.

200

00:30:29.430 --> 00:30:39.750

Ben Motz - IU (he rhymes w/ boats): So here i'm logged in in this window as a student so i'm going to go back to that test course and if we go to assignments, you can see that i've got the.

201

00:30:40.290 --> 00:30:49.320

Ben Motz - IU (he rhymes w/ boats): Consent assignment so like expected evaluation consent, this is where one if I click on it, this is where one would consent to participate or not participate i'm not going to click because I already did it.

202

00:30:49.890 --> 00:30:58.170

Ben Motz - IU (he rhymes w/ boats): But if I go back to assignments, you can see that i've also got the self paced learning activity, which is the actual experiment treatment if I click on that.

203

00:31:01.650 --> 00:31:10.590

Ben Motz - IU (he rhymes w/ boats): You can see the framing statement, which again is the core aspect of this experiment, whether somebody will be in a socially demanding evaluation setting or not socially demanding evaluation.

204

00:31:11.100 --> 00:31:15.030

Ben Motz - IU (he rhymes w/ boats): And in this particular case, my student role has been assigned to the socially demanding.

205

00:31:15.780 --> 00:31:21.960

Ben Motz - IU (he rhymes w/ boats): condition, so it says topics that you encounter in this learning activity will be part of the presentation, you will give to your classmates at the end of the Semester.

206

00:31:22.230 --> 00:31:27.150

Ben Motz - IU (he rhymes w/ boats): to perform well during this presentation so on and so forth, so I can say, I acknowledge that I will be presenting on these topics.

207

00:31:27.420 --> 00:31:38.520

Ben Motz - IU (he rhymes w/ boats): And as a framing thing it might not be the case that you want this to have any points, so we can assign a question to have some variable number of points in this case, it can be worthless toward the actual grade, and then you can go on with any sort of.

208

00:31:39.420 --> 00:31:44.790

Ben Motz - IU (he rhymes w/ boats): questions you might want to include in a learning activity in this case the hip bone is connected to the Bible.

209

00:31:45.540 --> 00:31:55.200

Ben Motz - IU (he rhymes w/ boats): So i'm going to submit this it says yes i'm ready to submit and now it'll be great to just as a normal multiple choice question in canvas learning management system quiz would be like.

210

00:31:55.950 --> 00:32:03.990

Ben Motz - IU (he rhymes w/ boats): And that's really a big accomplishment like again going back to the slide that I showed you like you have tried this I tried this with javascript have tried this which is like.

211

00:32:04.890 --> 00:32:09.630

Ben Motz - IU (he rhymes w/ boats): it's a major coup that we can actually run an experiment in the environment, where a student would otherwise be.

212

00:32:09.990 --> 00:32:20.430

Ben Motz - IU (he rhymes w/ boats): performing and taking in like working through learning activities without having a separate them from going into some sort of like a laboratory environment or some synthetic place where they might not be as.

213

00:32:21.210 --> 00:32:24.720

Ben Motz - IU (he rhymes w/ boats): Okay, so my answers have been submitted, and what i'm going to do is i'm going to go back to my.

214

00:32:25.620 --> 00:32:31.740

Ben Motz - IU (he rhymes w/ boats): window where i'm the teacher here i'm going to refresh and you can see that if I go back to status.

215

00:32:32.190 --> 00:32:43.410

Ben Motz - IU (he rhymes w/ boats): we've now got a submission for the self paced learning activity, if this was the case that we had like open ended response questions, one could grade those responses here, so we would actually be able to click on and most and.

216

00:32:44.520 --> 00:32:48.060

Ben Motz - IU (he rhymes w/ boats): yeah grade what somebody responses might have been an update scores accordingly.

217

00:32:49.320 --> 00:32:55.440

Ben Motz - IU (he rhymes w/ boats): The important aspect of running experiment is not necessarily just like setting up the thing, although that is a critical aspect.

218

00:32:56.310 --> 00:33:04.560

Ben Motz - IU (he rhymes w/ boats): The hard part is to then analyze the data that one generates and spectacular amount of data has just been generated by me just going through and clicking.

219

00:33:05.310 --> 00:33:10.320

Ben Motz - IU (he rhymes w/ boats): In that particular assignment, so a core feature of terracotta is that it allows the export of these data.

220

00:33:10.830 --> 00:33:18.240

Ben Motz - IU (he rhymes w/ boats): So I just clicked on the export data button and it's downloaded to my downloads folder a zip file that contains a number of different csv.

221

00:33:19.020 --> 00:33:22.950

Ben Motz - IU (he rhymes w/ boats): The csv are at this point, something that basically we took the.

222

00:33:23.340 --> 00:33:31.890

Ben Motz - IU (he rhymes w/ boats): We adopted the approach that we're going to give all the data to a potential researcher rather than kind of cherry pick it, although in the not too distant future, and terracottas development plan.

223

00:33:32.130 --> 00:33:38.010

Ben Motz - IU (he rhymes w/ boats): will actually make a dashboard that would make it possible for somebody to at a glance be able to see which condition might have worked better for outcome measures.

224

00:33:39.270 --> 00:33:44.700

Ben Motz - IU (he rhymes w/ boats): So in these in this sequence, you could see students submissions open up just so they get the idea.

225

00:33:46.440 --> 00:33:59.760

Ben Motz - IU (he rhymes w/ boats): These themselves are de identified it's not the case there's any identifiable information and the exports and again it only includes the responses of students who provided consent, so the test student would not be included here, because the test student didn't give consent.

226

00:34:01.470 --> 00:34:10.710

Ben Motz - IU (he rhymes w/ boats): If you just want to see what it looks like as the test student I wouldn't blame you because the test student will be assigned to the other treatment condition so just as an example of what.

227

00:34:11.190 --> 00:34:14.160

Ben Motz - IU (he rhymes w/ boats): Of the fact that there actually is random assignment going on behind the scenes.

228

00:34:14.580 --> 00:34:22.320

Ben Motz - IU (he rhymes w/ boats): If I enter in the test student view and then click on assignments, and then go to the same learning activity here i'm being given the default treatment because I wasn't.

229

00:34:23.160 --> 00:34:28.620

Ben Motz - IU (he rhymes w/ boats): I didn't provide consent, here it just says topics that you encountered in this learning activity will be included in the courses final exam.

230

00:34:29.610 --> 00:34:41.340

Ben Motz - IU (he rhymes w/ boats): So that's the basic idea by now you've seen that we can randomly assign different students different conditions, using terracotta and also students experience those different conditions in de identified data from this experiment can be exported.

231

00:34:42.540 --> 00:34:49.620

Ben Motz - IU (he rhymes w/ boats): Now that i've walked through that process absurdly quickly i'm going to hand it back to patty to bring us all back together structure.

232

00:34:51.660 --> 00:35:09.450

Patty Wolfe - Unicon: Right and so, then the chat is blowing up might take a few minutes before we go to the next slide talking about next steps to just answer some of the questions in the chat I think i've captured all of them, and I can just read them if you and on a can help answer.

233

00:35:11.220 --> 00:35:22.260

Patty Wolfe - Unicon: Some of them are comments to so from Paul something that's concerning is the lack of access for senior leaders who have the scope of authority to implement Mrs change based on that data.

234

00:35:24.270 --> 00:35:32.160

Ben Motz - IU (he rhymes w/ boats): And should the credit contract I spend most of my time in conversations with people who you might consider to be senior leaders in the university and elsewhere.

235

00:35:32.490 --> 00:35:37.290

Ben Motz - IU (he rhymes w/ boats): And I think that one of the interesting properties of Terra cotta is that it actually makes this.

236

00:35:37.980 --> 00:35:45.870

Ben Motz - IU (he rhymes w/ boats): A viable thing, not just within the confines of a single class, but also at the level of like large scale collaboration that senior leaders might be interested in testing out.

237

00:35:46.440 --> 00:35:55.320

Ben Motz - IU (he rhymes w/ boats): One of the most good things about an experiment is that the results of that experiment are especially compelling in terms of providing evidence that something works so to the extent that.

238

00:35:55.980 --> 00:36:00.930

Ben Motz - IU (he rhymes w/ boats): The leadership, whether it's academic leadership or it leadership or wherever wherever you might find this.

239

00:36:02.160 --> 00:36:07.170

Ben Motz - IU (he rhymes w/ boats): One of the cool things about terracottas that enables collaboration is where we could all kind of get together to try different things at scale.

240

00:36:07.500 --> 00:36:17.610

Ben Motz - IU (he rhymes w/ boats): So that's one of the one of the things that I see as being a potentially fruitful avenue for target is not just individual experiments in one class but collaboration across classes, where people come together to try what works.

241

00:36:19.980 --> 00:36:30.960

Patty Wolfe - Unicon: Great thanks Ben another question for Megan can a panelist address to how terracotta can be used to run experiments that might be predictive of student behavior performance.

242

00:36:35.100 --> 00:36:45.420

Ben Motz - IU (he rhymes w/ boats): So experimentation is usually different from prediction like experimentation involves answering a question about what the mechanism is the cause of something prediction might be.

243

00:36:46.290 --> 00:36:55.920

Ben Motz - IU (he rhymes w/ boats): yeah agnostic to what that mechanism might be Nevertheless, I if what if what you're saying is let's say we might have a prediction of the student having some outcome, and what we want to do is, we want to make.

244

00:36:56.550 --> 00:36:59.790

Ben Motz - IU (he rhymes w/ boats): an experimental treatment contingent on what we might already know about.

245

00:37:00.450 --> 00:37:06.240

Ben Motz - IU (he rhymes w/ boats): Student that is also possible what we've done in this study is we've randomly assigned students to different treatment conditions.

246

00:37:06.630 --> 00:37:13.950

Ben Motz - IU (he rhymes w/ boats): Something else that we could do is, we could actually control that we could manually assign students to different treatment additions, depending on what we already know about.

247

00:37:14.550 --> 00:37:20.550

Ben Motz - IU (he rhymes w/ boats): So it's possible to manually say us student you get the socially demanding you student get the not socially demanding.

248

00:37:20.850 --> 00:37:30.600

Ben Motz - IU (he rhymes w/ boats): So that we can maybe stratified by different propensity scores or do other things, so, in a sense, it allows us to do the sorts of things where we might imagine treatments, based on what we know about us.

249

00:37:31.500 --> 00:37:39.930

Ben Motz - IU (he rhymes w/ boats): But yeah it's not the sort of thing that is aimed at making a theoretic predictions instead it's aimed at making explanatory predictions about what should work given a particular treatment.

250

00:37:44.580 --> 00:37:57.780

Patty Wolfe - Unicon: another kind of comments from Michael accesses slippery instructors often have access to a lot of learning data from their students, but not necessarily in a useful form and not generally with training or guidance on how to use it.

251

00:38:02.250 --> 00:38:06.450

Ben Motz - IU (he rhymes w/ boats): So i'm actually kind of sympathetic to this and it's something that I trouble with a lot.

252

00:38:07.260 --> 00:38:16.740

Ben Motz - IU (he rhymes w/ boats): Right now, as I showed you terracotta spits out a number of different csv files and instructors have potentially varying degrees of expertise with respect to how they how they could work with these data.

253

00:38:18.090 --> 00:38:24.150

Ben Motz - IU (he rhymes w/ boats): The so terracotta right now is not a solution to upscale instructors terracotta solution to lower.

254

00:38:24.540 --> 00:38:30.510

Ben Motz - IU (he rhymes w/ boats): The barriers for somebody who might already be relatively well versed or might be interested in collaborating with others.

255

00:38:30.930 --> 00:38:35.940

Ben Motz - IU (he rhymes w/ boats): There are some features that we were planning like I said there's a dashboard that we tried to imagine ourselves.

256

00:38:36.660 --> 00:38:42.210

Ben Motz - IU (he rhymes w/ boats): Making the process a little bit more accessible to not experimenters, but I think the first step.

257

00:38:42.570 --> 00:38:53.490

Ben Motz - IU (he rhymes w/ boats): In at least as we've imagined terracotta is to be to eliminate the practical barriers and yeah we can imagine ourselves, maybe building training or PD or some other features that make it more accessible in the future.

258

00:38:56.760 --> 00:39:05.280

Patty Wolfe - Unicon: Another comment and we can definitely get back to this is just making sure that we post the article citations in the chat for future.

259

00:39:05.850 --> 00:39:23.430

Patty Wolfe - Unicon: Reference by the participants, so we can definitely do that Patricia asked a question on the type of technology that was used in the front end and back end I did address this in the chat, so it is a Java based back end with a view front end is what we use to develop terracotta.

260

00:39:25.410 --> 00:39:32.910

Patty Wolfe - Unicon: Another comment here from Michael i'd love to see the experimental design filter what was the name of the thing it was modeled after again.

261

00:39:34.260 --> 00:39:38.340

Ben Motz - IU (he rhymes w/ boats): The two I coach yeah it's that's i'll put it into chat.

262

00:39:39.570 --> 00:39:51.810

Ben Motz - IU (he rhymes w/ boats): The two I coach is it comes out of the US Department of Education actually and it's impressive it it guides somebody who's about to do a research through all the design decisions that would allow them to arrive at.

263

00:39:52.710 --> 00:39:58.440

Ben Motz - IU (he rhymes w/ boats): an experiment, if you want to just get quickly a glimpse of what it looks like in terracotta I can do that too.

264

00:39:59.460 --> 00:40:05.220

Ben Motz - IU (he rhymes w/ boats): So let me share my screen very briefly i'm not gonna i'm not going to torture you by actually building an experiment, but.

265

00:40:06.900 --> 00:40:08.190

Ben Motz - IU (he rhymes w/ boats): Because Michael asked.

266

00:40:09.330 --> 00:40:14.010

Ben Motz - IU (he rhymes w/ boats): let's go back let's leave our student view let's go back to Terra cotta.

267

00:40:19.230 --> 00:40:27.780

Ben Motz - IU (he rhymes w/ boats): And i'll go back to the experiment and basically i'll start at the beginning of the experiment, you can see that there's a builder that has left navigation kind of guide as to where you're at.

268

00:40:28.860 --> 00:40:36.180

Ben Motz - IU (he rhymes w/ boats): Questions allow somebody to kind of work through title and description basic metadata building the conditions there could be many conditions if somebody wanted to have.

269

00:40:36.540 --> 00:40:39.660

Ben Motz - IU (he rhymes w/ boats): You know, a full factorial thing that has 24 cells it's totally good.

270

00:40:40.080 --> 00:40:50.700

Ben Motz - IU (he rhymes w/ boats): And then yeah as we get toward decisions that are actually practical with the design, then there's tool tips that come up about what those decisions actually mean in the context of the design of the experiment so yeah This is very similar to it to it.

271

00:40:55.410 --> 00:41:05.430

Patty Wolfe - Unicon: it's um let's see where we are from the questions can I collect demographic and related data from student that's not scored in the LM s are available to me.

272

00:41:06.510 --> 00:41:10.920

Patty Wolfe - Unicon: via the SI si such as race, ethnicity and so yes.

273

00:41:11.580 --> 00:41:13.500

Ben Motz - IU (he rhymes w/ boats): That is a solid question, who asked that question.

274

00:41:14.220 --> 00:41:15.780

Ben Motz - IU (he rhymes w/ boats): megan megan megan.

275

00:41:16.920 --> 00:41:27.630

Ben Motz - IU (he rhymes w/ boats): Good job um yeah so terracotta would allow you to do that one thing you could do is you could just ask students, so you could include in your experiment on assignment.

276

00:41:27.930 --> 00:41:32.850

Ben Motz - IU (he rhymes w/ boats): That has all the questions that you'd want them to answer you could make the assignment worth something or you can make it worth nothing.

277

00:41:33.270 --> 00:41:40.740

Ben Motz - IU (he rhymes w/ boats): And, just like a learning activity students would be like the student work through that assignment would be included in the experts.

278

00:41:41.430 --> 00:41:46.410

Ben Motz - IU (he rhymes w/ boats): Alternatively, if you know something about a student that might be a property of the student that you want to be included.

279

00:41:46.800 --> 00:41:51.990

Ben Motz - IU (he rhymes w/ boats): outside of like asking the student for that input, you can also include that as an outcome.

280

00:41:52.620 --> 00:42:05.190

Ben Motz - IU (he rhymes w/ boats): I know that sounds crazy to have like a demographic property be an outcome but it works as far as like the data are concerned, so i'll show you this in terracotta to this is our current solution to the problem.

281

00:42:07.200 --> 00:42:08.100

Ben Motz - IU (he rhymes w/ boats): share my screen.

282

00:42:09.660 --> 00:42:11.010

Ben Motz - IU (he rhymes w/ boats): I should just keep it on my sharing.

283

00:42:12.390 --> 00:42:12.930

Ben Motz - IU (he rhymes w/ boats): So.

284

00:42:15.060 --> 00:42:21.690

Ben Motz - IU (he rhymes w/ boats): zoom is covering up if I go back here and go to save an exit let's go back to expected evaluation.

285

00:42:22.740 --> 00:42:38.550

Ben Motz - IU (he rhymes w/ boats): If I go to status exposure I can add outcomes and I can either select these outcomes from the gradebook so, as I said before, an outcome could be the final exam, but I can also manually enter scores for each individual student so let's say that this question was like I don't know.

286

00:42:42.120 --> 00:42:49.170

Ben Motz - IU (he rhymes w/ boats): High School percentile let's include that as a potential outcome score, and I would give to each student a number.

287

00:42:49.800 --> 00:42:57.210

Ben Motz - IU (he rhymes w/ boats): That would be then included in the export and the reason that you do that, as opposed to just kind of rely on what data your institution already has.

288

00:42:57.510 --> 00:43:02.940

Ben Motz - IU (he rhymes w/ boats): Is that as long as you put those scores or whatever the demographic properties that you're interested in into terracotta.

289

00:43:03.300 --> 00:43:11.970

Ben Motz - IU (he rhymes w/ boats): it'll export it in a de identified way that excludes non consenting participants, so you get the benefits of having the workflow that ensures privacy.

290

00:43:12.360 --> 00:43:18.900

Ben Motz - IU (he rhymes w/ boats): While still kind of including the data that you might otherwise want to inject into the experiment analysis without that make sense, it was a great question.

291

00:43:21.900 --> 00:43:37.650

Patty Wolfe - Unicon: Another question from Simon when students know they're part of an experiment, does it affect their performance instructors do not need permission to experiment in their own classes, perhaps it's better for students, not to know they may blend the grade on the experiments.

292

00:43:38.850 --> 00:43:45.060

Ben Motz - IU (he rhymes w/ boats): it's true yeah, so there are expectancy effects it's it's a it's not something that I can say it doesn't exist.

293

00:43:46.080 --> 00:43:57.540

Ben Motz - IU (he rhymes w/ boats): That the balancing act that any teacher researcher will have to play is how to design a research, study that both honors the students rights to things like.

294

00:43:58.110 --> 00:44:05.640

Ben Motz - IU (he rhymes w/ boats): Respect for persons beneficence all that and also the teacher the researchers rights to be able to learn what works.

295

00:44:06.300 --> 00:44:14.820

Ben Motz - IU (he rhymes w/ boats): In some cases, it might be the case that the experimental treatment is so innocuous or so minor or so harmless bit in front concern is a non issue like you could just skip it.

296

00:44:15.240 --> 00:44:23.970

Ben Motz - IU (he rhymes w/ boats): And terracotta does allow that to be the case, another practical case where you'd want to skip informed consent is if you're in a grade school so K 12.

297

00:44:24.330 --> 00:44:28.620

Ben Motz - IU (he rhymes w/ boats): Might not actually have the concept of informed consent be applicable at all because nobody's adults.

298

00:44:28.920 --> 00:44:33.600

Ben Motz - IU (he rhymes w/ boats): So it might be the case that the principal or the school board gives you permission to run an experiment.

299

00:44:33.900 --> 00:44:44.490

Ben Motz - IU (he rhymes w/ boats): In both cases, you wouldn't want to use consent, and in that situation it's possible to skip it turns out, it does have some warning screens, it says like are you sure you want to do it consent, can be a good thing, but it's possible to not add.

300

00:44:47.700 --> 00:44:48.810

Ben Motz - IU (he rhymes w/ boats): On here, did you want to comment on that.

301

00:44:49.950 --> 00:45:01.650

Aigner Picou - The Learning Agency Lab: Oh yeah I was just going to jump in and say for the teachers that were running them and they were all K 12 so we got informed consent from the parents usually but also.

302

00:45:02.850 --> 00:45:09.720

Aigner Picou - The Learning Agency Lab: In some cases, teachers, set up experiments where both groups get both treatments just in a different order and so.

303

00:45:10.830 --> 00:45:19.860

Aigner Picou - The Learning Agency Lab: it's sort of like minimises that you know oh I got one treatment and somebody else did in and maybe my greatest messed up because of the way you taught me this.

304

00:45:24.330 --> 00:45:29.040

Ben Motz - IU (he rhymes w/ boats): And it's worth kind of adding that the thing that I need just mentioned, where you've got parental permission slips.

305

00:45:29.490 --> 00:45:34.620

Ben Motz - IU (he rhymes w/ boats): Also, is implemented in Terra cotta so thanks to working with anya as we were developing it.

306

00:45:35.310 --> 00:45:42.450

Ben Motz - IU (he rhymes w/ boats): there's also a feature where, for example, a teacher gets permission slips they can manually mark which students aren't aren't participating.

307

00:45:42.930 --> 00:45:49.710

Ben Motz - IU (he rhymes w/ boats): Again it's not informed consent it's not blanket approval it's the teacher knows who isn't who is participating and then terracotta filters out people who aren't.

308

00:45:51.270 --> 00:45:57.180

Aigner Picou - The Learning Agency Lab: There also just one more quick thing, there are also ways we have so many issues with like trying to truly randomized.

309

00:45:58.260 --> 00:46:10.290

Aigner Picou - The Learning Agency Lab: Experiments this year but one way that some teachers that around this as well as if they had different cohorts of classes, they would randomize the specific cohort as opposed to doing it like within the class.

310

00:46:11.940 --> 00:46:26.910

Aigner Picou - The Learning Agency Lab: And, in some cases it just wasn't possible, for example, with the note taking experiment there's just no way for him to tell some of the students that they could take notes only in one way and then other students could, without them, knowing that he was studying them, so now.

311

00:46:31.980 --> 00:46:47.040

Patty Wolfe - Unicon: Another question then would it matter to the experiment design if the students knew about and compared being in one group versus the other for the experience experiment, if I knew I was in the non social evaluation and someone else was in the social evaluation, for example.

312

00:46:48.840 --> 00:46:49.350

Ben Motz - IU (he rhymes w/ boats): So yeah.

313

00:46:50.580 --> 00:46:56.730

Ben Motz - IU (he rhymes w/ boats): Students will communicate with one another um This is something that we've experienced in just about every research, study that i've.

314

00:46:57.570 --> 00:47:03.540

Ben Motz - IU (he rhymes w/ boats): conducted so we call that treatment spillage in the in the business we call it treatments village.

315

00:47:03.840 --> 00:47:15.120

Ben Motz - IU (he rhymes w/ boats): And the, so there is a modicum of bias, you get or I should actually say what the effective treatments villages, is that the effect, whatever the differences, the you're trying to measure becomes smaller.

316

00:47:15.840 --> 00:47:27.180

Ben Motz - IU (he rhymes w/ boats): So it becomes basically harder to detect the difference if students from one condition know what the students in the other condition might have might have gotten it reduces the sort of the dosage or the intensity of the experimental treatment.

317

00:47:28.290 --> 00:47:37.590

Ben Motz - IU (he rhymes w/ boats): But what you get from being able to run an experiment that's at the individual level, as opposed to cluster randomized trials like saying this class gets one treatment this class gets another tree.

318

00:47:38.100 --> 00:47:46.980

Ben Motz - IU (he rhymes w/ boats): Is the you get statistical power so by doing individually randomized trials than the unit of analysis is the students and there are many more students than our classes.

319

00:47:47.850 --> 00:47:55.290

Ben Motz - IU (he rhymes w/ boats): There might still be reasons if you've got like a particular a particularly interesting contrast that you really wouldn't want students from different.

320

00:47:56.040 --> 00:48:02.910

Ben Motz - IU (he rhymes w/ boats): Treatment conditions to know about the other than maybe it would be better, as a between site study where you've got that one class doing one thing out of the classroom you know.

321

00:48:03.360 --> 00:48:06.720

Ben Motz - IU (he rhymes w/ boats): Although students sometimes talk between classes to so, it becomes difficult.

322

00:48:07.350 --> 00:48:16.920

Ben Motz - IU (he rhymes w/ boats): In general, I think that education researchers are falling down on the idea that individual based randomization even though there's such a thing as treatments village is usually the best way to go, for showing a difference.

323

00:48:20.670 --> 00:48:29.220

Patty Wolfe - Unicon: Alright, great so another question Ben can data be linked across multiple courses from one semester, to the next to perform a more long term study.

324

00:48:31.140 --> 00:48:39.360

Ben Motz - IU (he rhymes w/ boats): So the data are the teachers or the researcher who's collaborating with the teacher, like the the data will be exported and it'll be export in the common format so.

325

00:48:40.320 --> 00:48:45.210

Ben Motz - IU (he rhymes w/ boats): Basically, like doing a row bind where you take some data from one Semester and bind it on to the other should be possible.

326

00:48:46.140 --> 00:48:53.730

Ben Motz - IU (he rhymes w/ boats): yeah we're working on functionality and terracotta right now that allows one to basically export and experiment as designed in one class.

327

00:48:54.030 --> 00:49:03.540

Ben Motz - IU (he rhymes w/ boats): And scored it into another canvas course site, so that one could easily iterate or even distribute an experiment across multiple core sections or across multiple semesters.

328

00:49:04.260 --> 00:49:10.920

Ben Motz - IU (he rhymes w/ boats): there's yeah so there's there's nothing practical that's preventing that it's more of a we're trying to make it a little bit easier in the near future.

329

00:49:16.410 --> 00:49:24.270

Patty Wolfe - Unicon: Alright, another question um How does Terra cotta support ethical research practices, given that teachers are not researchers and may not.

330

00:49:24.810 --> 00:49:35.310

Patty Wolfe - Unicon: know or ascribe to the ethical research practices that guide professional researchers researchers have to go through ethics, training and pass certifications to conduct research.

331

00:49:35.970 --> 00:49:36.240

Ben Motz - IU (he rhymes w/ boats): yeah.

332

00:49:38.400 --> 00:49:48.690

Ben Motz - IU (he rhymes w/ boats): i'm going to answer that question by saying that the university by making somebody a teacher is putting a crap ton of trust in that person so.

333

00:49:49.140 --> 00:50:01.050

Ben Motz - IU (he rhymes w/ boats): Everything from ferpa to great assignments relies on a teacher behaving ethically and I think that that trust could extend to trusting that they wouldn't do an experiment on ethically.

334

00:50:02.250 --> 00:50:14.850

Ben Motz - IU (he rhymes w/ boats): That might be, I mean your question kind of scratches it a larger issue of how we can help a generation of teachers to become capable experimenters using tools like terracotta but other tools.

335

00:50:15.960 --> 00:50:25.410

Ben Motz - IU (he rhymes w/ boats): And I think that that's a process that will require collaboration and the biggest obstacle to that group collaboration right now is practical so we're eliminating the practical.

336

00:50:25.980 --> 00:50:30.540

Ben Motz - IU (he rhymes w/ boats): problem, although I still think that you're right that there's work to do to build these collaborations.

337

00:50:31.170 --> 00:50:38.010

Ben Motz - IU (he rhymes w/ boats): Some of that work is being done actively right now, so I can spotlight a collaborator of mine mark mcdaniel at Washington university runs.

338

00:50:38.250 --> 00:50:43.530

Ben Motz - IU (he rhymes w/ boats): circles so it's a Center that is a collaboration between teachers and cognitive scientists who are interested in exploring.

339

00:50:44.280 --> 00:50:57.420

Ben Motz - IU (he rhymes w/ boats): cognitive interventions and how they improve student outcomes in learning environments, just like this, so yeah there's currently efforts underway to try and basically upscale teachers, so that they're capable contributors in this enterprise of finding out what looks.

340

00:51:00.990 --> 00:51:09.510

Patty Wolfe - Unicon: Great a few more questions so with Terra cotta and development is our projection as to when it might be commercially available.

341

00:51:11.880 --> 00:51:12.930

Ben Motz - IU (he rhymes w/ boats): You want to show the last slide.

342

00:51:12.990 --> 00:51:16.770

Patty Wolfe - Unicon: I mean we could kind of yeah we can absolutely do that let's share the last slide.

343

00:51:22.230 --> 00:51:23.340

Ben Motz - IU (he rhymes w/ boats): So yeah.

344

00:51:23.940 --> 00:51:24.510

Ben Motz - IU (he rhymes w/ boats): yeah looks good.

345

00:51:26.580 --> 00:51:33.060

Ben Motz - IU (he rhymes w/ boats): If this is something that you're interested in it's worth kind of spotlighting what it said early it's it's Open Source so.

346

00:51:34.170 --> 00:51:44.940

Ben Motz - IU (he rhymes w/ boats): If you want to go to a terracotta dot education and you could include I want terracotta or it happens to be the first post that's in our in our in our role right now.

347

00:51:46.230 --> 00:51:49.740

Ben Motz - IU (he rhymes w/ boats): yeah you could see a link to our github repo and there's instructions.

348

00:51:50.880 --> 00:51:57.150

Ben Motz - IU (he rhymes w/ boats): That paddy's team has prepared for somebody who wanted to spin up their own terracotta instance so it's something that you could totally do right now, as you wish.

349

00:51:58.440 --> 00:52:05.100

Ben Motz - IU (he rhymes w/ boats): On our end we're still working on ways of making it so that it's both sustainable and available, perhaps as a service.

350

00:52:05.880 --> 00:52:08.430

Ben Motz - IU (he rhymes w/ boats): One of the big things that have made this possible, is that.

351

00:52:08.970 --> 00:52:16.320

Ben Motz - IU (he rhymes w/ boats): target has recently been announced, as the recipient of is grant Institute of education sciences, now has a digital learning platforms to enable.

352

00:52:16.620 --> 00:52:23.460

Ben Motz - IU (he rhymes w/ boats): Efficient education, research network that has got to be the longest named research network in history of research networks but.

353

00:52:24.090 --> 00:52:27.990

Ben Motz - IU (he rhymes w/ boats): yeah we're expecting a stable beta release sometime this coming summer.

354

00:52:28.410 --> 00:52:34.710

Ben Motz - IU (he rhymes w/ boats): And if you're interested to find ways of having us maybe like include you in a multi tenant architecture as a service.

355

00:52:35.010 --> 00:52:43.590

Ben Motz - IU (he rhymes w/ boats): Then in the I want terracotta page up there there's a form that you could fill out we'd be happy to circle back with you and find ways of making it possible for you to get a pilot at your place.

356

00:52:44.010 --> 00:52:49.290

Ben Motz - IU (he rhymes w/ boats): In addition, we're also working on the X prize digital learning challenge, so this is still open and we're.

357

00:52:49.950 --> 00:52:55.260

Ben Motz - IU (he rhymes w/ boats): Putting together an entry the entry will be to run a multi site experimental research pilot with intercom.

358

00:52:55.710 --> 00:53:07.080

Ben Motz - IU (he rhymes w/ boats): And yeah This is another area that we're interested in building out features, so that we can expand the scope of what's possible within terracotta to accommodate new research, new research methods that are relevant to that particular price.

359

00:53:09.090 --> 00:53:20.850

Ben Motz - IU (he rhymes w/ boats): So yeah so if you're interested in it, then yeah go to target it out education in that first post you'll find a link to our github and if you're interested in following up, then let us know we'd be happy to have another webinar with you and your team.

360

00:53:23.250 --> 00:53:33.390

Patty Wolfe - Unicon: So, probably have time for another question or two before we need to wrap this next questions for you, on yay so a question popped into my head during a presentation, she presented data that.

361

00:53:33.870 --> 00:53:40.650

Patty Wolfe - Unicon: An online asynchronous self paced activity was inferior to both live online and live face to face to teaching.

362

00:53:41.130 --> 00:53:54.810

Patty Wolfe - Unicon: As this run counter to most existing research, the factors involving the experiment design rigor etc are concerning decisions made based on the result of less live rigorously designed experimentation or instruction.

363

00:53:57.600 --> 00:54:08.940

Aigner Picou - The Learning Agency Lab: Yes, so you're completely right and with all of the studies that teachers ran these were all like very small scale, as they play and sort of DIY experiments just to.

364

00:54:09.660 --> 00:54:21.450

Aigner Picou - The Learning Agency Lab: provide them with some insights on their instruction and, like the context of her students, I think another teacher could have done this experiment with their students somewhere else, and had completely different results.

365

00:54:21.900 --> 00:54:26.910

Aigner Picou - The Learning Agency Lab: I think, for her it just gave her information, but she needed to shift the way that.

366

00:54:27.840 --> 00:54:37.200

Aigner Picou - The Learning Agency Lab: To structured her asynchronous instruction, so that it was more effective for her students, she was also working with younger students, so that could affect it, but we aren't.

367

00:54:38.040 --> 00:54:50.700

Aigner Picou - The Learning Agency Lab: We aren't promoting like basing they're saying like you know synchronous instruction over asynchronous instruction from this like very small scale study it's more just providing feedback and, of course, she would need to do more.

368

00:54:51.180 --> 00:55:03.570

Aigner Picou - The Learning Agency Lab: studies on her students to see if you know if it's even true you know she ran one study but is not enough information to base decision on so yeah I can I completely agree.

369

00:55:04.620 --> 00:55:06.300

Ben Motz - IU (he rhymes w/ boats): It was just interesting.

370

00:55:06.720 --> 00:55:07.590

Aigner Picou - The Learning Agency Lab: For instruction.

371

00:55:09.030 --> 00:55:19.350

Ben Motz - IU (he rhymes w/ boats): Although I do want to say, like sometimes the sample for an expert and education, research, experiment is a population so.

372

00:55:20.430 --> 00:55:29.070

Ben Motz - IU (he rhymes w/ boats): yeah it might be the case that the full the full totality of everybody who you'd be interested to study are only the students in one class and if that's the case.

373

00:55:29.400 --> 00:55:35.280

Ben Motz - IU (he rhymes w/ boats): Then it might be the case that the number of students who are enrolled in that class is 100% of everybody who you care about.

374

00:55:35.640 --> 00:55:46.380

Ben Motz - IU (he rhymes w/ boats): And if that's true, then yeah the sample sizes, is not an issue because you're finding out what works exactly for whom you're interested in if you don't want to make an inference to some new population than studying within a class example.

375

00:55:49.980 --> 00:56:05.160

Patty Wolfe - Unicon: Maybe time for one or two more questions, then how valid are these experiments if groups are small, perhaps experimenting one class or some other helps to also include learning community in class as support making it more like class experiments.

376

00:56:07.110 --> 00:56:15.960

Ben Motz - IU (he rhymes w/ boats): Well, so kind of like I said before, it depends on what you're going to do with the data so yeah there it's not the case that there's one sample size, that is the right sample size for an experiment.

377

00:56:16.560 --> 00:56:20.970

Ben Motz - IU (he rhymes w/ boats): You really have to think about what the inferences that you're trying to draw are you trying to draw an inference.

378

00:56:21.420 --> 00:56:28.470

Ben Motz - IU (he rhymes w/ boats): about all of education If so, then you need, like many different kinds of classes, so the generalize ability of the inference that's.

379

00:56:28.920 --> 00:56:36.330

Ben Motz - IU (he rhymes w/ boats): being targeted with an experiment is really critical for understanding how to structure the experiment itself i'm kind of like.

380

00:56:37.050 --> 00:56:43.980

Ben Motz - IU (he rhymes w/ boats): very concerned about this in education, research, so yeah the generalize ability crisis is a recent article that came out.

381

00:56:44.520 --> 00:56:53.850

Ben Motz - IU (he rhymes w/ boats): As a pre printed behavioral and brain sciences and it suggests that almost all of social social science is experiencing a crisis of generalized ability.

382

00:56:54.240 --> 00:57:00.840

Ben Motz - IU (he rhymes w/ boats): So yeah I do think that researchers, need to be especially careful about the distance of their inferences drawn from experiment.

383

00:57:01.770 --> 00:57:08.220

Ben Motz - IU (he rhymes w/ boats): But again, it shouldn't be the case that because somebody has a small sample size, they can't learn something important, especially if it's.

384

00:57:08.970 --> 00:57:19.680

Ben Motz - IU (he rhymes w/ boats): A question that's being you know that's relevant to a particular teachers practice and yeah that's that's, something for which I think that the results of an experiment and just that teachers class would be really strong yeah.

385

00:57:20.640 --> 00:57:26.490

Ben Motz - IU (he rhymes w/ boats): Okay we're at the last slide patty did we do we actually talked about like who would present the last slide.

386

00:57:27.390 --> 00:57:32.040

Patty Wolfe - Unicon: I don't think so we just wanted to make sure that folks had our contact information so.

387

00:57:33.960 --> 00:57:40.620

Patty Wolfe - Unicon: Great we really appreciate everyone joining us today i'm here are our email address for the panelists that were here today.

388

00:57:43.140 --> 00:57:45.810

Patty Wolfe - Unicon: Jason I think you have some closing words.

389

00:57:46.530 --> 00:57:52.440

EDUCAUSE Moderator, Jason Martin: Yes, definitely Thank you so much, everyone that wouldn't be engaging presentation really exciting content and conversation.

390

00:57:53.010 --> 00:58:00.900

EDUCAUSE Moderator, Jason Martin: Before you sign off today, please click on the session evaluation link you'll find that in the chat window, your comments are extremely important to us.

391

00:58:01.320 --> 00:58:05.970

EDUCAUSE Moderator, Jason Martin: The sessions recording and presentation slides will be posted to the website later today.

392

00:58:06.390 --> 00:58:19.470

EDUCAUSE Moderator, Jason Martin: And please feel free to share that with your colleagues, and finally, please join us for the next Industry and Campus webinar on October 19 at 1pm Eastern to hear about securing digital transformation in higher ED.

393

00:58:20.100 --> 00:58:25.920

EDUCAUSE Moderator, Jason Martin: on behalf of EDUCAUSE, Thank you so much to all of our presenters, and this is Jason Martin thanks for joining us.

394

00:58:28.050 --> 00:58:29.550

Ben Motz - IU (he rhymes w/ boats): Thank you Jason thanks to everybody.

395

00:58:30.240 --> 00:58:31.770

Aigner Picou - The Learning Agency Lab: Thank you everyone for joining us.