

WEBVTT

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00:00:00.000 --> 00:00:16.109

Nikolas Huot: i'm a strategy director at complete college America and it's my pleasure to welcome pamela Bourbon and melody Baker, and I will let introduce them themselves, and a second, but just give you a very brief overview of just equations.

2

00:00:17.130 --> 00:00:24.360

Nikolas Huot: organization that works to ensure that policies are implemented to reverse inequities that exists in math education at all levels.

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00:00:24.660 --> 00:00:32.070

Nikolas Huot: In order to provide a good math foundation for students and ultimately to remove barriers that stifle college completion so much like.

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00:00:32.640 --> 00:00:46.920

Nikolas Huot: CCA to conduct research and analysis synthesize that work in a way that is digestible hose gatherings with with various stakeholders and provide expert advice to implement more equitable educational policy so with this, I yield the floor.

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00:00:47.610 --> 00:00:55.830

Nikolas Huot: To our two presenters today and, again, please feel free and I encourage you to use the chat and the Q amp a feature, thank you.

6

00:00:58.680 --> 00:01:06.750

Melodie Baker: Thank you for that introduction Nicholas and I especially like to thank CCA complete college America for giving us the opportunity to.

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00:01:07.020 --> 00:01:20.880

Melodie Baker: share our work and to do this presentation on post secondary math pathways and equity lens and i'm the national policy director for just equations and I will hand it over to our executive director, so that she can introduce herself.

8

00:01:21.840 --> 00:01:35.970

Pamela Burdman: hi there i'm Pam Bergman executive director of just equations which I see some familiar names out there, but if you don't know us we're about a three year old organization and we were founded.

9

00:01:36.390 --> 00:01:46.530

Pamela Burdman: Really, to focus on re conceptualizing the role of math in education, equity, especially in the pathways from high school to and through college.

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00:01:48.660 --> 00:01:49.500

Pamela Burdman: Back to Melanie.

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00:01:50.520 --> 00:01:57.450

Melodie Baker: Thank you so we're here today because for too long matt policies and college admissions practices.

12

00:01:57.870 --> 00:02:04.950

Melodie Baker: have created barriers to access to post secondary opportunities for black latinx and economically disadvantaged students.

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00:02:05.460 --> 00:02:18.690

Melodie Baker: Amid the cove at 19 pandemic college attainment and student success rates have only become worse, so today Pam and I are here to discuss post secondary strategies that remove barriers, instead of create them.

14

00:02:19.350 --> 00:02:30.420

Melodie Baker: Pam will begin by highlighting how and why that is an equity issue and then i'll share what's being done about it at the post secondary level and then we'll discuss challenges and opportunities.

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00:02:31.200 --> 00:02:37.140

Melodie Baker: please feel free to post any questions you have in the chat and we'll answer them during the Q amp a section of our presentation.

16

00:02:37.800 --> 00:02:51.180

Melodie Baker: But before I jump in I like to conduct a poll to see who's attending you'll see a poll pop up in the screen there we go and please just select if you're an administrator and executive.

17

00:02:52.320 --> 00:03:03.120

Melodie Baker: executive leadership faculty Member advising student affairs that she'll office or systems office and then as soon as everyone's finished, I will do the results.

18

00:03:20.160 --> 00:03:23.100

Melodie Baker: let's just give a few more seconds to show the results.

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00:03:38.640 --> 00:03:49.170

Melodie Baker: There we go, so it looks like about 29% of the people here are in administration we've got about 12% people here in executive leadership.

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00:03:49.800 --> 00:03:58.350

Melodie Baker: 26 people are faculty members 24% advising students there's only a couple of people in the CIO office.

21

00:03:58.620 --> 00:04:11.370

Melodie Baker: And 70% system, so it looks like we have today with US Administration faculty members and advising students, so we are happy to have you I will go ahead and pass it over to Pam to to kick us off.

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00:04:12.840 --> 00:04:14.220

Pamela Burdman: Okay, so i'm.

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00:04:15.240 --> 00:04:35.310

Pamela Burdman: Just equations has what we call a mathematics of opportunity framework in which we unpack why math is an equity issue and and how inequity in math operates, and that that came out a few years ago with this is here's what we observed and there's something we call the prevailing.

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00:04:35.340 --> 00:04:38.640

Pamela Burdman: architecture of math opportunity that has these three interrelated.

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00:04:38.640 --> 00:04:45.540

Pamela Burdman: components it begins with a foundation of misconceptions about what it means to do math.

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00:04:46.110 --> 00:04:52.830

Pamela Burdman: And who can do it and you may be familiar, that there are a lot of assumptions that math ability is something that's innate.

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00:04:53.220 --> 00:05:03.870

Pamela Burdman: versus learned that your math person or you're not or that processing speed and the ability to do math quickly is is like all that counts in mathematics, which is not the case.

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00:05:04.260 --> 00:05:22.470

Pamela Burdman: We know that mathematicians, in particular, known for doing math deeply and slowly, not necessarily quickly and efficiently, so

the so these misconceptions are at the root of this and then secondly, there are many existing inequities poorly resource schools.

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00:05:22.710 --> 00:05:24.780

Pamela Burdman: lack of access to qualified teachers.

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00:05:25.200 --> 00:05:34.500

Pamela Burdman: Not to mention bias and stereotype threat that and and the corrosive effects of them and they sort of scaffold this architecture further.

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00:05:35.340 --> 00:05:45.240

Pamela Burdman: And then Lastly, we call the what we call the use of math as pedigree sort of reinforces this architecture, the way we've historically used math.

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00:05:45.690 --> 00:06:02.220

Pamela Burdman: to confer privilege and as a gatekeeper to determine who has access to educational attainment even when the math skills in question may not be valid prerequisites and it's, in particular when we when it's not valid that we question.

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00:06:03.330 --> 00:06:05.910

Pamela Burdman: The gate keeping obviously and then.

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00:06:07.050 --> 00:06:18.240

Pamela Burdman: By the time students are in college these gaps have had a chance to widen and widen over time, those with benefits get more and more and those.

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00:06:18.810 --> 00:06:29.460

Pamela Burdman: Who lack them often fall farther behind so that's why these patterns have a particularly pernicious effect on college access and success and we know that.

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00:06:31.140 --> 00:06:43.740

Pamela Burdman: We know, and we can acknowledge that change in this needs to begin in K 12 and i'm sure some of you are working on that, but today we're here to focus on the role of post secondary education in addressing these changes which.

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00:06:44.490 --> 00:06:50.820

Pamela Burdman: Really requires a comprehensive approach addressing numerous aspects of.

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00:06:51.900 --> 00:06:59.550

Pamela Burdman: Of math equity and what we call the four equity dimensions of math education.

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00:07:00.840 --> 00:07:05.310

Pamela Burdman: which begins with math content what math we teach.

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00:07:05.490 --> 00:07:06.480

Pamela Burdman: How we teach it.

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00:07:07.020 --> 00:07:08.100

Pamela Burdman: And then and.

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00:07:09.240 --> 00:07:16.710

Pamela Burdman: How we teach it, which is instruction and then how we measure students learning all these pieces and then they interact.

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00:07:17.850 --> 00:07:28.260

Pamela Burdman: To both determine and be determined by our various readiness policies and structures so in rethinking this, we need to address all these components.

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00:07:28.800 --> 00:07:37.260

Pamela Burdman: The content of math pathways because we know research has demonstrated that the traditional pathway to calculus serves few students well.

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00:07:38.310 --> 00:07:39.480

Pamela Burdman: Then, if people have questions.

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00:07:39.480 --> 00:07:40.140

Pamela Burdman: about that.

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00:07:40.710 --> 00:07:43.260

Pamela Burdman: We can discuss that more later in the Q amp a.

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00:07:43.830 --> 00:07:45.330

Pamela Burdman: about some of that research.

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00:07:45.330 --> 00:07:59.340

Pamela Burdman: But we can see, with a focus on equity that the traditional pathway has at least two problems, first of all, it pressure

students to accelerate in mathematics early on as early as middle school or high school.

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00:07:59.850 --> 00:08:17.130

Pamela Burdman: And that results that contributes to tracking results in students often being filtered out of stem opportunities, particularly students of color, but it also serves as a hurdle that blocks students with other interests from pursuing you know their college.

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00:08:17.190 --> 00:08:18.630

Pamela Burdman: or career ambitions.

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00:08:20.220 --> 00:08:33.210

Pamela Burdman: instruction is also critical we hear often hear two sets of we hear about two types of classroom characteristics i'm going to have two columns here.

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00:08:34.710 --> 00:08:35.520

Pamela Burdman: A and B.

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00:08:36.600 --> 00:08:49.260

Pamela Burdman: So, which one of those sounds like it's describing a math classroom perhaps the math classroom that that you experienced we're not going to discuss it now, but just answer for yourself.

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00:08:50.850 --> 00:08:52.530

Pamela Burdman: I suspect, many of you.

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00:08:53.190 --> 00:09:11.940

Pamela Burdman: picked column a because traditional math classrooms really do tend to emphasize the characteristics in column a whereas most students learn better in more of a column B experience and that's what a lot of the direction, a lot of the math pedagogy is is going now also key.

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00:09:12.330 --> 00:09:14.040

Pamela Burdman: is how we measure student learning.

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00:09:14.790 --> 00:09:15.120

Are.

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00:09:16.290 --> 00:09:30.630

Pamela Burdman: Frequent emphasis on standardized assessments and high stakes time test is really problematic, especially given the disparate

impact of those tests and we know from research on college placement exams.

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00:09:31.380 --> 00:09:41.520

Pamela Burdman: That the the test have a limited predictive value and that they were responsible for many students being under placed into remedial courses that they may not have needed.

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00:09:42.210 --> 00:09:57.840

Pamela Burdman: And there's similar issues involving college admissions tests lastly math for all many of the reasons I just described, plays a role in numerous policies and structures that really determine students readiness for.

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00:09:57.870 --> 00:10:02.400

Pamela Burdman: High School courses ability to graduate from high school or to be admitted.

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00:10:02.880 --> 00:10:07.140

Pamela Burdman: and succeed in college, as well as being placed into college level courses.

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00:10:08.940 --> 00:10:20.220

Pamela Burdman: These policies really set the context and conditions in which the practices of content instruction and assessment can be adopted and implemented, and they can also serve to constrain.

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00:10:20.280 --> 00:10:21.120

Innovation.

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00:10:22.920 --> 00:10:39.090

Pamela Burdman: And importantly, if these policies between high school and post secondary are misaligned additional equities may result so that's sort of an overview of these four dimensions and why math is such an equity issue.

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00:10:40.260 --> 00:10:49.560

Pamela Burdman: And i'm leaving it to melody to talk more about the strategies we see playing out in post secondary education to to address some of these concerns.

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00:10:52.950 --> 00:11:07.770

Melodie Baker: Thanks Pam so imagine being a real estate agent and being presented with a new client and you being the researcher that you are, you know that the average person spends about \$250,000 in a house.

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00:11:08.880 --> 00:11:20.430

Melodie Baker: The desired location is in a metropolitan city something like Austin Texas, or perhaps in a diverse Community like portland portland Oregon and, of course, everyone wants walkable neighborhoods.

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00:11:20.880 --> 00:11:29.580

Melodie Baker: And people are typically looking for a minimum of three bedrooms in the event that they decided to expand their families or if they want to have a guess.

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00:11:29.970 --> 00:11:39.420

Melodie Baker: And, of course, you cannot forget enough space for a pet you bring all these options together and you put together a portfolio.

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00:11:39.990 --> 00:11:47.460

Melodie Baker: For your client you cite the average market research and you live in you even include homes, will have a doggie doorway.

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00:11:48.120 --> 00:11:53.820

Melodie Baker: You meet with your client present the options only to learn that they are dairy farmers.

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00:11:54.450 --> 00:12:06.960

Melodie Baker: They have six children 12 chickens 26 cows and need no less than 110 acres to accommodate them, they also need enough living space for the three dogs and their pet pig.

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00:12:07.680 --> 00:12:15.510

Melodie Baker: Needless to say, that the doggie door won't work now, I know that that sounds like a silly example and it might be far fetched and.

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00:12:15.990 --> 00:12:24.750

Melodie Baker: I actually am from a rural community and my my my extended families have farm so it's it's really not that far fetched.

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00:12:25.590 --> 00:12:36.060

Melodie Baker: But that's exactly what we do every time we take an average once it one size fit all approach to select assess and play students using math as a filter.

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00:12:36.870 --> 00:13:00.000

Melodie Baker: So similar to finding the right type of home for a dairy farmer, we need to find the right math pathway for students entering education around the individual opposed to the standard average or archaic and equitable practice so Research has proven that 100% of applicants are people.

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00:13:01.140 --> 00:13:09.180

Melodie Baker: Research has proven that 100% of future non stem and stem majors artists engineers their people.

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00:13:10.260 --> 00:13:24.870

Melodie Baker: And of course Research has proven that 100% of students, whether they're black economically disadvantaged white they're all people so we're not we are not in the business of people were in the wrong business.

81

00:13:26.010 --> 00:13:37.470

Melodie Baker: that's why we need a new architecture of math opportunity centering these four dimensions content instruction assessment and policy around the student.

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00:13:38.250 --> 00:13:53.400

Melodie Baker: So i'm going to spend the rest of my presentation, providing examples from states that have implemented these four dimensions to create a new architecture of opportunity, using strategies routed around the student and not a dated standard at the past.

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00:13:57.180 --> 00:14:10.170

Melodie Baker: So we all know that content reform is not easy, you have to realize that you're attempting to undo over 50 years of structured practices policies and faculty determine norms.

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00:14:10.530 --> 00:14:27.900

Melodie Baker: math pathways require major major changes to developmental and college level math courses, the majority of States have adopted mad pathways in some form some States require and some States simply allow colleges and universities to adapt them.

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00:14:32.610 --> 00:14:52.290

Melodie Baker: The choice of pathways can vary the most common three are statistics quantitative reasoning and the stem pathway to cut to the calculus other pathways adopted by States include mathematics modeling math for teachers business MAC data science personal finance.

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00:14:53.430 --> 00:15:05.100

Melodie Baker: So the data Center has recommended that stage choose between three and seven path ways, but what's most important is that the pathway aligns with student academic and career goals.

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00:15:05.850 --> 00:15:17.820

Melodie Baker: So at this time we'll Honorable to find out if your state system is using diversify pathways we want to know, have you been implementing matt pathways for several years now.

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00:15:18.600 --> 00:15:27.900

Melodie Baker: Have you recently began implementing math pathways is your state or college system thinking about implementing that pathways.

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00:15:28.410 --> 00:15:40.020

Melodie Baker: or diversified math pathways or are you still using traditional math pathways So if you could just fill that out, and once everyone is done we'll give you a few seconds.

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00:15:41.100 --> 00:15:42.030

Melodie Baker: give you about.

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00:15:43.140 --> 00:15:46.680

Melodie Baker: 10 more seconds, we will show the results.

92

00:16:01.980 --> 00:16:10.080

Melodie Baker: Okay wow it looks like about 35% of the people attending have been implementing math pathways for several years now that's great.

93

00:16:10.710 --> 00:16:28.740

Melodie Baker: And we've got another 29% have begun recently implementing math pathways we got we had 21% are thinking about implementing diversified matt pathways and about 15 people 15% of the people here are still using traditional math pathways that's very interesting now, thank you.

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00:16:37.410 --> 00:16:42.150

Melodie Baker: So instructional reforms must be put in place to create an equitable system.

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00:16:44.100 --> 00:16:51.750

Melodie Baker: Here are the five guiding principles that must be considered number one math educators need critical consciousness.

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00:16:52.350 --> 00:17:06.690

Melodie Baker: To math curriculum should reflect a more expansive view of mathematics, including the history of mathematical concepts, the uses of math and different cultures and the application of math for understanding, current events.

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00:17:07.350 --> 00:17:15.090

Melodie Baker: math curriculum and instruction should be adaptable, so that it is relevant to the specific students in the class.

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00:17:15.600 --> 00:17:23.400

Melodie Baker: Number four math curriculum and instruction should feature meaningful opportunities to engage in collaborative work.

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00:17:24.090 --> 00:17:34.770

Melodie Baker: And last but not least, assessment practices and policies should prioritize deep mathematical thinking exploration and collaboration During our recent.

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00:17:35.730 --> 00:17:44.040

Melodie Baker: convening we had a young lady talk about her math experiences and she said during elementary and middle school she had several challenges and struggled.

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00:17:44.790 --> 00:18:01.740

Melodie Baker: struggled understanding the work she took a data science class and they used different things that they did on a daily basis, the snacks that they that they use meaningful experiences to help her understand what the work was that she was doing, and she said it made a big difference.

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00:18:03.090 --> 00:18:13.680

Melodie Baker: So next we're going to talk about assessment and placement reforms policies and practices and sometimes laws need to change at the institution and state level.

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00:18:14.310 --> 00:18:26.040

Melodie Baker: Two strategies are multiple measures placement and co requisite approaches, the most recent survey from the Center for analysis of post secondary readiness in 2016.

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00:18:26.610 --> 00:18:36.150

Melodie Baker: said that more than half of colleges were using multiple measures placement by now probably many more are they have grown dramatically over the past decade.

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00:18:42.720 --> 00:18:47.280

Melodie Baker: So here are two examples of policy reforms admissions policy reforms.

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00:18:48.030 --> 00:18:55.080

Melodie Baker: Recently the University of California system expanded its courses that meet math requirements for admissions to include courses, such as.

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00:18:55.440 --> 00:19:08.820

Melodie Baker: Data science computer science and discreet math high school students in their third and or fourth year can now choose to take quantitative reasoning courses, instead of the traditional algebra man sequence.

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00:19:09.690 --> 00:19:13.950

Melodie Baker: Another example here another example of policy reform is from New York.

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00:19:14.790 --> 00:19:22.080

Melodie Baker: Report link the decreasing number of New York City students of color gaining admissions to coons four year programs to sue Nice.

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00:19:22.410 --> 00:19:29.790

Melodie Baker: To kooney's strict reliance on cut off scores on current college entrance exams and GPA for admissions.

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00:19:30.510 --> 00:19:37.380

Melodie Baker: So cooney piloted a program that admitted students who scored below the SA T cut off scores.

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00:19:37.920 --> 00:19:47.160

Melodie Baker: And they use multiple measures or performance based assessments like essays presentations and letters of recommendations from teachers to accept students.

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00:19:47.760 --> 00:20:02.520

Melodie Baker: They found that the pilot cohort had higher first semester GPA than their peers from New York City public schools and they had a higher likelihood of earning at least 80% of their first semester attempted credits.

114

00:20:06.930 --> 00:20:11.310

Melodie Baker: States are also reforming their policy with respect to remediation.

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00:20:14.880 --> 00:20:27.450

Melodie Baker: In California, a recent law at 705 requires the Community colleges maximize the probability that a student will enter and complete college level coursework within one year.

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00:20:28.050 --> 00:20:41.280

Melodie Baker: So that means not placing students not not placing the majority of students into remedial courses because evidence shows that these courses decrease the chances that students will complete them sequence.

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00:20:47.280 --> 00:20:59.340

Melodie Baker: So ab 705 has made a big difference in 2019 78% of first time math students to college level math which is statistics be calculus and others.

118

00:20:59.670 --> 00:21:17.160

Melodie Baker: versus only 21% had access to college level math and in 2015 so roughly 31,000 more students completed college level math than in 2015 i'm going to add this link to the chat so everyone can see it.

119

00:21:18.570 --> 00:21:19.830

All right, there we go.

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00:21:21.270 --> 00:21:21.570

Okay.

121

00:21:22.890 --> 00:21:23.250

Okay.

122

00:21:25.050 --> 00:21:33.300

Melodie Baker: But there are some challenges some colleges have kept remedial courses and students get the impression that they're supposed to take them.

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00:21:34.140 --> 00:21:45.540

Melodie Baker: This is more common at colleges with higher proportion of students of color and we need to do a better job of understanding how equitably students are able to access them options.

124

00:21:46.440 --> 00:22:00.810

Melodie Baker: So now we'd like to hear from you i'm going to hand it over to my colleague pan, so that we can have we can start a discussion question, please remember, if you have questions put them in the chat it will enter them during our Q amp a at the end.

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00:22:02.040 --> 00:22:05.490

Pamela Burdman: And what we'd like to start with, though, is we'd like to.

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00:22:05.490 --> 00:22:06.660

Pamela Burdman: hear from you.

127

00:22:07.140 --> 00:22:08.280

Since we know that.

128

00:22:09.570 --> 00:22:27.330

Pamela Burdman: Something around almost two thirds of your states have been implementing math pathways and many of the others are considering it we'd like to hear from you what you see as the challenges in your state or system with implementing math pathways.

129

00:22:35.700 --> 00:22:36.360

Pamela Burdman: Nothing yet.

130

00:22:37.710 --> 00:22:41.370

Pamela Burdman: will give you a people are probably typing we will.

131

00:22:42.720 --> 00:22:43.590

Pamela Burdman: give another.

132

00:22:44.130 --> 00:22:44.580

Pamela Burdman: I don't know.

133

00:22:45.840 --> 00:22:47.580

Pamela Burdman: 30 4030 seconds here.

134

00:22:48.810 --> 00:22:49.800

Pamela Burdman: preparedness.

135

00:22:52.860 --> 00:22:56.310

Pamela Burdman: Okay, I was wondering on the preparedness if that was preparedness of.

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00:22:57.690 --> 00:23:00.420

Pamela Burdman: Students or of the institution.

137

00:23:01.950 --> 00:23:04.650

Pamela Burdman: We see one students are coming in unprepared.

138

00:23:08.340 --> 00:23:09.690

Pamela Burdman: Getting by it yeah.

139

00:23:15.120 --> 00:23:15.780

Pamela Burdman: Okay.

140

00:23:17.790 --> 00:23:21.870

Pamela Burdman: Sufficient enrollment numbers competitive admissions hi bill.

141

00:23:26.970 --> 00:23:28.830

Pamela Burdman: Agreements between two year and four year.

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00:23:29.880 --> 00:23:35.970

Pamela Burdman: So i'm going to try to summarize these a little bit there are concerns that students are underprepared.

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00:23:38.190 --> 00:23:54.810

Pamela Burdman: Their concerns about getting buy in at all levels and, in particular, now we didn't talk about high schools, because our focus today is on post secondary, but there is definitely a concern being pointed to hear about.

144

00:23:56.610 --> 00:24:06.840

Pamela Burdman: high schools preparing students on a stem pathway and thinking, they need to have calculus i'm thinking, this means have calculus in high school.

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00:24:09.090 --> 00:24:12.630

Pamela Burdman: Okay, then there's faculty resistance and.

146

00:24:13.230 --> 00:24:15.120

Pamela Burdman: i'm guessing this is math faculty.

147

00:24:17.400 --> 00:24:20.430

Pamela Burdman: But not yeah and another one about faculty and administrators.

148

00:24:20.670 --> 00:24:21.300
admission.

149

00:24:23.460 --> 00:24:27.210
Pamela Burdman: administrators clashing political climate.

150

00:24:28.410 --> 00:24:31.260
Pamela Burdman: Okay university by, and that was an issue we had in.

151

00:24:32.340 --> 00:24:50.400
Pamela Burdman: California, we can, maybe talk about that at some point if folks would like because in California our Community colleges adopted math pathways initially but they weren't accepted for transfer by the four year institutions, some of whom I see are actually on this call.

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00:24:52.200 --> 00:25:00.180
Pamela Burdman: And the it another issue about hyper competitive admissions which really goes to the challenges of having math pathways in high school.

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00:25:02.040 --> 00:25:20.730
Pamela Burdman: which we, I think, well, I know bill I know he's referring to, we talked about the University of California system has opened up as melody mentioned access to admission for students who take courses say other than algebra two or pre calculus.

154

00:25:22.080 --> 00:25:25.290
Pamela Burdman: Which is a positive thing, but there's a very real concern that.

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00:25:27.090 --> 00:25:27.990
Pamela Burdman: students.

156

00:25:29.430 --> 00:25:35.280
Pamela Burdman: could be overlooked for admission if they don't have, the more traditional courses on there.

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00:25:37.230 --> 00:25:39.600
Pamela Burdman: You know, on their plate, so to speak.

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00:25:41.130 --> 00:25:44.100

Pamela Burdman: melody do you want to highlight any of these there's.

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00:25:44.190 --> 00:25:46.230

Pamela Burdman: I haven't gone through all of them yet.

160

00:25:46.890 --> 00:25:58.740

Melodie Baker: Yes, I saw some really good ones one when many students are many years out of school some math remediation is often essential if it is quote unquote easy to take basic math.

161

00:25:59.070 --> 00:26:09.450

Melodie Baker: For liberal arts or Stat classes are we cutting students off from stem pathways by creating a different type of tracking so I thought that that one was interesting.

162

00:26:10.980 --> 00:26:18.030

Pamela Burdman: And I can say that that is a major concern we have and we think.

163

00:26:19.830 --> 00:26:40.170

Pamela Burdman: That, that is, that doesn't necessarily have to be the case with math pathways, but it is a risk, and we are actually looking into and doing some research to understand how different colleges implement their math pathways to understand how they can be implemented in ways that do not.

164

00:26:41.280 --> 00:26:41.850

Melodie Baker: track.

165

00:26:42.090 --> 00:26:45.450

Pamela Burdman: For example, tracks students of color out of stem pathways.

166

00:26:46.800 --> 00:26:51.930

Pamela Burdman: There is definitely a risk The other concern we have is that students who.

167

00:26:53.070 --> 00:27:00.630

Pamela Burdman: are undecided about their majors will just be defaulted into statistics and then be shut off from.

168

00:27:01.260 --> 00:27:11.640

Pamela Burdman: The option of us, or have it not completely shut off, but it would be much harder for them to then change their mind and decide to go into stem because they hadn't taken.

169

00:27:12.090 --> 00:27:23.190

Pamela Burdman: The math that's required for the stem pathways so we do think we need to have a lot more thinking and understanding about how to do that well, and there are examples of colleges that have.

170

00:27:24.510 --> 00:27:37.320

Pamela Burdman: That have shown evidence that they have that they are they've improved the rates of students of color who are in stem fields so that's what we're looking into others melody.

171

00:27:37.920 --> 00:27:45.810

Melodie Baker: Yes, and then one of the things I wanted to add to that was about students who had been out of college for quite some time and needing some remediation.

172

00:27:46.170 --> 00:27:55.020

Melodie Baker: And prior to our call we were talking with Nicholas on from CCA from complete college America about co requisite classes.

173

00:27:55.350 --> 00:28:06.420

Melodie Baker: And, which really work to address the students basic needs and at the same time provide them Course Credit So yes, some students, I think we do agree, some students do need additional support.

174

00:28:06.720 --> 00:28:14.730

Melodie Baker: However, that's where those co requisite courses come in and the second part of that question is whether or not that clip students often stem.

175

00:28:15.030 --> 00:28:23.040

Melodie Baker: pathways so that's the main idea if students who are interested in the stem pathway they get you know, access to a Co requisite.

176

00:28:23.820 --> 00:28:38.700

Melodie Baker: pathway or co requisite course that can put them on that pathway it really truly and creates more opportunities and more access for for more folks to participate So hopefully we answered that question I.

177

00:28:40.020 --> 00:28:50.610

Pamela Burdman: Can I add one thing melody We also advocate that there need to be bridge courses, so that a student who does.

178

00:28:51.450 --> 00:29:00.180

Pamela Burdman: Just that I mean the only reason or the main reason it's difficult to switch from, say, a non stem to a stem pathway is because of.

179

00:29:00.660 --> 00:29:11.070

Pamela Burdman: Policies that that say so, you know, with some institutions it's like once you've taken past your math you can't go back and do your math again, so there are policies that.

180

00:29:11.550 --> 00:29:30.120

Pamela Burdman: could be changed and we think that there needs to be bridges and actually a Co requisite as melody was, I think, mentioning can serve as a bridge for a student who needs brushing up in stem because they've decided that's really where their passion is.

181

00:29:33.090 --> 00:29:46.710

Melodie Baker: that's a yes expanding and so there's a few other questions in here or a few other answers on you know what challenges, what the what the challenges are in place, and this one, I thought was interesting.

182

00:29:47.100 --> 00:29:59.790

Melodie Baker: reworking algebra sequence is being done without including other departments Pam do you have any suggestions or recommendations on how departments can work together to make the sequence make sense for everyone.

183

00:30:01.470 --> 00:30:02.520

Pamela Burdman: um well.

184

00:30:02.700 --> 00:30:04.920

Pamela Burdman: I can certainly say that i'm.

185

00:30:06.360 --> 00:30:13.440

Pamela Burdman: You know i'm not a math Professor so it's I can certainly say that it is important for the math.

186

00:30:14.250 --> 00:30:15.030

Melodie Baker: departments.

187

00:30:15.060 --> 00:30:24.720

Pamela Burdman: To work with other disciplines and There certainly are some models coming out from the ma, for example, mathematics association of America has done.

188

00:30:25.860 --> 00:30:43.890

Pamela Burdman: Some studies showing how they work with client disciplines there's a few reports I don't have them at the tip of my fingers right now, but we could certainly share them with Nicholas that might be useful models for how it's been done with.

189

00:30:44.850 --> 00:30:48.630

Pamela Burdman: You know that the the traditional courses, the sort of college algebra.

190

00:30:49.290 --> 00:30:57.450

Pamela Burdman: Pre calculus calculus courses and how they look to address the needs of what they call client disciplines, but I think that's.

191

00:30:58.680 --> 00:31:02.190

Pamela Burdman: The correct mentality and there's certainly some other.

192

00:31:03.330 --> 00:31:10.440

Pamela Burdman: statements and reports from major math associations that also advocate doing that, if any of that's helpful.

193

00:31:10.800 --> 00:31:15.270

Pamela Burdman: We can share it with the CCA folks as resources.

194

00:31:18.360 --> 00:31:23.520

Melodie Baker: sounds good, I there's a really there's an interesting comment here from Karen ball.

195

00:31:23.910 --> 00:31:34.380

Melodie Baker: And she said I teach all four year I teach edit edit for your liberal liberal arts college i've been struck by the number of students who enter the stats pathway.

196

00:31:34.680 --> 00:31:42.570

Melodie Baker: With co requisite support and drive and actually find out that they're good at math unfortunately they still write their success office luck.

197

00:31:43.050 --> 00:31:52.980

Melodie Baker: I would love to find a bridge from the stats class to pre calculus i'm working on it, but I think it's good to think of those bridges past the first year.

198

00:31:53.310 --> 00:31:53.730

mm hmm.

199

00:31:56.220 --> 00:31:58.380

Pamela Burdman: yeah that's that's pretty much what I was.

200

00:31:59.670 --> 00:32:01.080

Pamela Burdman: Suggesting yeah.

201

00:32:02.580 --> 00:32:09.480

Pamela Burdman: same then when those bridge classes, need to be allowed um.

202

00:32:11.700 --> 00:32:11.970

yeah.

203

00:32:13.440 --> 00:32:17.100

Melodie Baker: there's another question on here about what to be used as multiple measures i'm assuming that's.

204

00:32:17.490 --> 00:32:25.410

Melodie Baker: associated with the admissions process and how colleges are looking or what measures they're looking to admit students.

205

00:32:25.800 --> 00:32:33.450

Melodie Baker: And that's one of the examples that I that I captured actually LP I they do a lot with performance based assessment.

206

00:32:33.810 --> 00:32:44.130

Melodie Baker: And and using more than just as it cut off scores, and more than GPA is to assess the student and that example that I gave earlier, it was quite interesting because.

207

00:32:44.700 --> 00:33:05.190

Melodie Baker: Many of those students who would have typically not been accepted in program they ended up thriving and however they did turn in a variety of measures and to demonstrate their capabilities, so these students did presentations they got recommendations, they wrote essays so but mpi.

208

00:33:06.780 --> 00:33:14.340

Melodie Baker: Does a great job of demonstrating what types of measures can be used for the admissions process, do you have anything.

209

00:33:15.450 --> 00:33:15.990

Melodie Baker: him.

210

00:33:17.700 --> 00:33:18.150

Pamela Burdman: On.

211

00:33:19.980 --> 00:33:24.990

Pamela Burdman: don't know don't really have anything to add on on that I would yeah.

212

00:33:26.460 --> 00:33:27.060

Pamela Burdman: But I see.

213

00:33:27.390 --> 00:33:42.750

Pamela Burdman: Another weight I lost a question from Eric not sure of eric's last name about how do you how do we convince teachers counselors and others that the alternative pathways are just as rigorous as the algebra stem pathway.

214

00:33:44.640 --> 00:33:57.150

Pamela Burdman: So i'm not sure if that question is referring because it says, teachers, I don't know if Eric is referring to high schools or Eric feel free to tell us in the chat if if you're out there.

215

00:33:58.830 --> 00:34:03.870

Pamela Burdman: But I don't know if he was asking about high schools or colleges.

216

00:34:05.460 --> 00:34:12.450

Pamela Burdman: colleges colleges slightly easier, is that a message from Eric no college is slightly easier in that.

217

00:34:13.950 --> 00:34:19.410

Pamela Burdman: It should be focused on what a student's major is I, I think that.

218

00:34:21.810 --> 00:34:36.360

Pamela Burdman: When, although we do know of instances where students change majors because they become discouraged with their experience experiences in the math pathway.

219

00:34:37.020 --> 00:34:43.200

Pamela Burdman: You know they change, out of a stem major For that reason, so, although we say that the major.

220

00:34:43.860 --> 00:34:54.630

Pamela Burdman: That the math pay pathway should follow the major we do know of cases documented in the you know literature, where the major follows the math pathway someone.

221

00:34:55.260 --> 00:35:04.290

Pamela Burdman: You know, has a bad experience or discouraging experience in calculus, even if they get a good grade, this is more common for women, they feel discouraged.

222

00:35:05.610 --> 00:35:11.100

Pamela Burdman: And the women are more likely to be women of color students of color as well, they feel discouraged.

223

00:35:11.130 --> 00:35:12.570

Pamela Burdman: And then they switch their majors.

224

00:35:12.840 --> 00:35:20.910

Pamela Burdman: So that's an issue, but if Eric was asking about high school, we still haven't heard back from Eric so i'm just going to say if Eric was asking about high school.

225

00:35:22.140 --> 00:35:22.920

Pamela Burdman: This is.

226

00:35:23.550 --> 00:35:31.890

Pamela Burdman: a somewhat different question how do we convince them that they're just as rigorous Well, first of all, we have to ensure that they're just as rigorous obviously they're not just as rigorous.

227

00:35:31.890 --> 00:35:38.310

Pamela Burdman: Because we say so, but we have to create pathways that actually are rigorous and we have to.

228

00:35:40.290 --> 00:35:55.350

Pamela Burdman: reconsider our definition of rigor because a lot of times the definition of rigor in math has been how much algebra has you know and abstract manipulation if we're using that definition of rigor it will be hard to convince anyone.

229

00:35:56.430 --> 00:35:57.810

Pamela Burdman: But we talked to.

230

00:35:59.190 --> 00:36:07.530

Pamela Burdman: Ricardo Molina who spoke at our Conference of a couple weeks ago of Ohio and he talks about rigorous being that the the level of complexity.

231

00:36:09.450 --> 00:36:23.610

Pamela Burdman: The ability to solve problems, and also to communicate about the problem solving and so that, so there are other definitions that so that's a starting point, but I think with teachers and counselors we tend to think that.

232

00:36:25.230 --> 00:36:34.050

Pamela Burdman: If that admissions policy is really key so if admissions policies from the four year institutions in in a state.

233

00:36:34.110 --> 00:36:35.370

Pamela Burdman: Are requiring.

234

00:36:35.520 --> 00:36:45.510

Pamela Burdman: You know the calculus or traditional stem halfway, then it, it would probably be not reasonable to try to convince teachers and counselors.

235

00:36:47.460 --> 00:36:54.690

Pamela Burdman: of you know, to play students in these pathways because it could close their opportunities so we're increasingly.

236

00:36:56.040 --> 00:36:57.690

Pamela Burdman: Having conversations and I know.

237

00:36:58.170 --> 00:37:03.900

Pamela Burdman: States who were maybe on this call, are doing that, as well, certainly California and Ohio I know.

238

00:37:05.070 --> 00:37:09.900

Pamela Burdman: have been doing so and i'm i'd be curious if other states are looking at this question as well.

239

00:37:12.060 --> 00:37:13.680

Pamela Burdman: feel free to let us know in the chat.

240

00:37:15.780 --> 00:37:23.370

Melodie Baker: And there's another question here that I saw to be pretty interesting and bill bases said, the financial pressures up.

241

00:37:24.030 --> 00:37:32.040

Melodie Baker: Yes, yes, the financial pressures on state funding behind graduate graduating important graduate and for your efforts and.

242

00:37:32.490 --> 00:37:41.670

Melodie Baker: encourage students to stay in your own lane and moving into stem from a non stem background needs to be accomplished fairly and efficiently that's a really good point.

243

00:37:41.910 --> 00:37:53.940

Pamela Burdman: it's a very good point and that really needs to be addressed looks like we've got about five minutes left for questions we've got a lot of questions and comments in here.

244

00:37:59.550 --> 00:38:09.090

Pamela Burdman: yeah comment about early treisman looking at students going from intro to stats to pre calculus or calculus, we think that can be done.

245

00:38:13.380 --> 00:38:15.030

Pamela Burdman: Does matt pathways recommend.

246

00:38:15.240 --> 00:38:17.520

Pamela Burdman: Removing calculus from associate degrees in.

247

00:38:17.520 --> 00:38:33.870

Pamela Burdman: engineering and technology, it seems that there is some advocacy in that direction, also how much does how much the math pathways deviate from the traditional sequence for engineering and technology disciplines So these are good questions, and I think it's important to note that.

248

00:38:35.100 --> 00:38:42.480

Pamela Burdman: there's not like one math path one sort of monolithic math pathways.

249

00:38:43.740 --> 00:38:45.180

Pamela Burdman: By Bible or anything like that.

250

00:38:46.380 --> 00:38:51.990

Pamela Burdman: Much of this work has happened, and some of the folks who are on on this.

251

00:38:53.040 --> 00:38:54.300

Pamela Burdman: In this meeting, have been involved.

252

00:38:54.510 --> 00:38:57.480

Pamela Burdman: it's happened at state levels often states have a.

253

00:38:57.960 --> 00:39:16.830

Pamela Burdman: math Task Force comprised of math faculty from two year and four year institutions and, ideally, as we said they would be talking with their colleagues in various disciplines to determine what math is needed by the various disciplines and.

254

00:39:20.070 --> 00:39:23.130

Pamela Burdman: You know how to design, how to design those pathways.

255

00:39:24.570 --> 00:39:25.890

Pamela Burdman: And if anyone who.

256

00:39:26.010 --> 00:39:27.360

Pamela Burdman: has done that wants to.

257

00:39:29.220 --> 00:39:32.880

Pamela Burdman: make a comment about that in the chat feel free.

258

00:39:33.990 --> 00:39:44.070

Pamela Burdman: I do not know if pathways will be for reflected in ap scholar recommendations, but again I would say, as we were saying with admissions The more that.

259

00:39:45.690 --> 00:39:46.410

Pamela Burdman: These.

260

00:39:47.520 --> 00:39:49.050
Pamela Burdman: sort of gate keeping.

261
00:39:49.110 --> 00:39:51.360
Pamela Burdman: Entities recognize.

262
00:39:52.410 --> 00:40:01.140
Pamela Burdman: The math pathways the more legitimacy, they will have in the more teachers and counselors could feel comfortable with.

263
00:40:02.580 --> 00:40:03.840
Pamela Burdman: Referring students to them.

264
00:40:04.980 --> 00:40:14.790
Pamela Burdman: So um I know we have a few closing comments melody should we should we go to those I think we've got we're down to about two minutes here.

265
00:40:15.750 --> 00:40:17.520
Melodie Baker: Yes, I think we should.

266
00:40:18.690 --> 00:40:19.320
Okay.

267
00:40:21.480 --> 00:40:29.130
Melodie Baker: i'm gonna put this in the chat okay so recent college and career readiness and.

268
00:40:29.790 --> 00:40:41.670
Melodie Baker: The CRC report that Pam mentioned a little bit earlier noted that many of the post secondary math at reforms had not been intentional about implementing strategies, the target equity.

269
00:40:42.540 --> 00:40:51.630
Melodie Baker: And they highlighted these four areas pam's recent op ED examine this issue, noting that, of the four dimensions, we highlighted today.

270
00:40:52.050 --> 00:40:59.670
Melodie Baker: instructional strategies, in particular, maybe getting short shrift in favor of structural and curricular changes.

271
00:41:00.540 --> 00:41:19.680

Melodie Baker: And that could prevent post secondary math reforms from successfully addressing and equity I added a link to the chat so you all, can do that improving developmental college level, mathematics and we'd love for you to go there and looks like we only have a minute left.

272

00:41:31.920 --> 00:41:33.120

Melodie Baker: So we will.

273

00:41:34.020 --> 00:41:35.520

Melodie Baker: Go close out.

274

00:41:37.140 --> 00:41:50.370

Melodie Baker: Okay we'll close our quote and we will close our presentation, with a quote from Jose bilston a math teacher who recently remind us that we don't teach math we teach students math.

275

00:41:51.660 --> 00:42:06.210

Melodie Baker: Finally, i'd like to thank everyone for joining us, and please again go to our website just equations.org which is right there on the screen to subscribe to our newsletter and learn more about our work, thank you again for spending the afternoon with us have a great rest of your day.

276

00:42:09.300 --> 00:42:13.650

Nikolas Huot: So thank you both for this presentation answering the questions.

277

00:42:14.520 --> 00:42:24.780

Nikolas Huot: For those of you are in attendance, and if you didn't have an opportunity to ask your questions or you have an opportunity to have your question answered, please feel free to reach out to me and or.

278

00:42:25.350 --> 00:42:32.010

Nikolas Huot: To complete the evaluation that allow for this webinar that provides you an opportunity.

279

00:42:32.520 --> 00:42:40.080

Nikolas Huot: To ask a question and will forward the questions to melody and Pam so that we can follow up with you and make sure that your questions are answered.

280

00:42:40.650 --> 00:42:48.990

Nikolas Huot: For this, so with this, I encourage you to things, make sure you go to our website and for the recording the resources that.

281

00:42:49.710 --> 00:42:59.580

Nikolas Huot: Our presenters share today will be uploaded shortly by tomorrow at the latest, also would like to invite you to sign up for the upcoming.

282

00:43:00.270 --> 00:43:09.510

Nikolas Huot: webinars the next one will be in two weeks on march 11 still at the same time 3pm Eastern on co requisite support at this time, so.

283

00:43:09.840 --> 00:43:20.220

Nikolas Huot: Again, now the pamela Thank you so much for your time and everybody in attendance Thank you so much for your your time as well, and your questions, your participation much appreciated, so thank you very much.

284

00:43:21.870 --> 00:43:23.790

Melodie Baker: Thank you, thanks for having us.