Room 119 Session II
Outreach to challenged populations (LD, socioecomic): Center for Community Inclusion & Disability (University of Maine)
Name of Presenter(s): Sara Taddeo and Abby Pearson and Alan Kurtz

Welcome to the conference sessions that you will be sharing with people today. It is reaching out to unengaged students. We have two wonderful people that have offered to share information with us. First we have Sara, she is the parent of three public school students, one of the parents here…she is one of our parents…was first introduced to the power STEM when she attended Sertizide High School and Magnet Math and Science school in New York City. She holds a doctorate in comparative literature from U-Penn and is currently a volunteer public advocate here in Waterville. We have Abby Pierson, Abby is a lab instructor at Colby Environmental Studies Program and a graduate student at USM. Thank you both for doing this for us. My name is Laurette Darling. I am a fourth grade teacher here at all the _____ school and I am also the President of Maine Science Teachers Association and am serving on the Governor's STEM Council as the Elementary-Middle School representative. Welcome and I am glad you're here. Ladies would you like to start, we have a format that you would like. Oh, excuse me, we are going to have to stop ten minutes, or maybe less, because there are so few of us, about 10 minutes before the end of the session because I have three questions I am going to have to ask you to summarize and so…would you put those questions up here so that I need to start keeping information…You all set. Okay thank you.

So I signed up to present because as far as I can tell I am the only parent, exclusively a parent, there are plenty of people here who have kids but I came explicitly as a parent and parents were not mentioned in any of the presentations and I think that is quite a romance. We are really important if STEM is going to reach out to any saving spot, certainly all three of my kids have learning disabilities so I have first hand experience with the difficulties that they have had to face which are probably more significant than those of others and my concerns is in particular with regard to kids with learning disabilities a majority of whom are still boys, that we are losing a lot of these boys before they even get as far as to start _____. They are already turned off by the time that they get to fourth grade. So I am more than presenting, I am really asking for suggesting and I want to bring it to the attention of people working in STEM, the need to reach out to these students who many times can be quite successful and be attracted to STEM, to reach them before they get to fourth grade and continue reaching out to them all the way through junior high because it is too late by the time they get to high school to reach these students in particular and then another aspect of my concerns is many, many students particularly here in Waterville sustain a tremendous drop-off and we introduce _____ they skyrocketed and I am sure most of your know almost one-to-0ne correlation between socioeconomic depravation and poor math source. So if we cannot fix the economy we cannot direct our jobs to have the intervene to overcome that kind of deficits, because again it is too late by the time you get to high school to get these kids up to speed particularly in math and without math you can't do science. And I have watched cohorts that graduated with my two oldest who are now in college, one is about to graduate and the other is a freshman. In that ____ of students a huge number of them dropped out of

college and were not able to get into the college they wanted to go to in large measure because they did not have advanced preparations, not because the school was at fault. I think the school does a super job within the constraints that it faces, but there I think there has to be a lot more outreach to parents and there has to be really targeted outreach to the kids who are most disadvantaged. In general what I see what the STEM initiative is it is great if you are in middle class or above, but if the parents are engaged and they know where to go and they get hold of the resources and their students are able to achieve and continue being successful. But for a large number of students particularly in more rural or more disadvantaged areas they don't even have access to a computer. So the whole digital divide question is very looming…unfortunately I don't have a whole lot of solutions but I have some ideas but I really came to hear that people would address these questions and be aware that these are questions that should be dealt with and I have to say that in the presentation that I heard this morning I didn't find that there was too many awareness of that or indeed of the role a parents fill. No I am here as a consciousness raiser and I am welcome and open to conversation and responses and I have some ideas that I would be happy to share but I really want to turn the floor over to discussion.

Should I talk now too. Okay. So actually I think that is a really great way to introduce it. I am, as Laurette said, I am a lab instructor here at Colby and as a graduate student at USM I taught anatomy and physiology and then the _____ studies program until a lot of tutoring for STEM students with disabilities of all sorts whether it was physical disabilities or learning differences or any other kind of way that they were disadvantaged at school and what I am really curious about is a lot of these students are fortunate enough to make it into college, they are getting fantastic support at USM. They have a really great program for STEM students there, but I felt like a lot of them weren't necessarily prepared for finding and being successful with a career after college. And, what I am really interested in is taking some of the technologies and strategies that they learned hopefully early on in high school and then in college and how do you move that into a career as well. I think a lot of these students don't have…obviously you don't have the same support when you are in careers as you do in school systems and how do you prepare these students to be kind of more able to know themselves and know what works for them and also to get technology into the systems that they need because there are some awesome technologies that apply to students, but once you are out of that school and don't have the grant money anymore it is not _____. And I am going to say that there are a lot of great things at Colby, they don't have a disabilities office and there are students here, yea, and there are students here that could use it.

There are great things and they are kind of looked over which is unfortunate. You have some great programs under Lenn _____ works with the EAST program.

What program, you said east?

Eastern Alliance for science technology and mathematics, I can't remember exactly what the acronym stands for. (unable to understand).

_____ University of Machias, also…

I hear…why don't you introduce yourself, I'm sorry. I was sticking to the script. Why don't you go ahead since you just spoke and tell us who you are?

Sure I'm Malcolm Holmes. I am retired from the Air Force. My wife and I raised three children, we have adopted three more. We have eight grandchildren. I have spent the last twelve years in a Baptist School continued _____ degrees, up here a year and a half ago finishing my Master's Degree in science education. I teach at Washington Academy High School, been there full time for seven years, chemistry, biology, ecology. We just received as a group of teachers the main environmental educators association board last year. I have worked with Dr. Beal in soft shell clam shell research project in the West Machias bringing high schools into the STEM funded grant. My big concern is the disenfranchised or the unengaged boys that we have not going national but especially we have a graduation rate is less than one-third now, boys graduating compared to females, where over 70% of special ed students are now male nationally. The education system has been so focused on young women for 30 years, to get them, as it well should be, they neglected boys in that process and not engaged, and there is a whole lot of teachers I have talked to are very aware of this ongoing conversation but in the upper levels of academia and politicians that is not the case. For example we have our politicians here in the State of Maine that take your daughter to government day, but we certainly don't have a take you son to government day. Orono for example, has a program for engineering and they do and they encourage girls and that is wonderful but they ought to have another program or one as integrated that is encouraging boys. They just said this morning that they are not going to be able to get enough of the students that are out there, well they are ignoring a whole group and we are watching them slip away. As speaking for my daughters I am very excited about what we have done to increase young women's engagement in education but I am appalled that the way young men have been ignored, basically and left behind. It is not a clinically correct subject.

Well as the mother of two boys I would simulate that I observe that they struggle more with certain aspect of the curriculum (coughing) and this is something I have observed in a lot of other boys and that is why I am asking is there something we need to do in a lower grade to engage boys right off the bat so that they are not kind of looking at their feet already by the time they reach…

It is a literacy that you are talking about, you are talking about certain areas to the curriculum…

No I am really thinking specifically math and science. If they have to sit still to do these activities, they are really not…they are going to think of it as just school, it is not fun, it is school. And I was thinking I imagine you know Janelle, we have a great third grade teacher who integrates movement and yoga into the classroom to keep kids calm and focused and engaged and in that classroom there was a very large appropriation of boys who were considered to be very troubled and one of the ways that she was able to engage with them was to allow them to move and she would do their activities while moving, it

is not…she would do everything but it helped. And what I was thinking was some of the concepts in math could be taught kinesthetically.

Last year at the STEM conference, the second annual one, they gave the data over the last 10 years and they broke it up by gender and you could have heard a pin drop in the room when they said that over 80% of the STEM related career filled jobs went to women, over 80%. Now that is great, however, it is really scary that we don't have men going into these career fields, especially when we have already addressed, we don't have enough students period. So these large group especially in roaming have engaged young men _____ secondary education, it is a large group that we have to somehow reach out to.

Yes, I'm Ivy. I am the Center Director of Sylvan Learning Center in Augusta. My background is in elementary education, I have worked in _____ but really what I am looking for…I am supposed to have all the support from Sylvan Corporate and you know our student population is probably 60% or 70% students whose parents pay to come and get extra support and then we have like probably 30% I would say that is mostly left behind funded. (all laughing). So and with that it is students whose parents are on _____ lunch or students who are _____ lunch that quality and as you said with the digital divide rural Maine schools that can do so on line because it is not feasible with the plan that we have to be able to reach a lot of these far out schools and I called them up to do but on line with excellent results if you can get on line and a lot of people don't have computers or access. So I am just running into a lot of…you know I just want to make a difference in education, like that is what I am in it for and you know there are these stumbling blocks and…

So is it an activity. Is this the one that you are talking…that they can do it at home if given a lap top to use?

We don't give a laptop. They would have to have their own and that is just it, if we could give a lap top and have…if I could find the research that said that that would work I could get us involved in that but they have to have their own internet connection and…

So especially in low income, _____ lunch students I would think the state would _____ people for lap tops.

Well 7th grade…we are talking elementary because we are a 4/5 school and they gave them to us _____ that no child left behind because we didn't (too low to understand) and so what, these kids don't have…we have lap tops but they are on carts, we have a couple carts in the school, so but every child has their own lap top. I think there is _____, I am not sure.

And that is just that their results aren't any better…

(all talking)

But even like that with Waterville being close, there are a couple schools that we offer to go to the school or they can bring their students to the center for help. We have all these options and it is just, well I am sure you know the number of students that qualify versus the number that sign up. And it is really disinheriting, it is a great opportunity…

…there is a late bus, the kids, no there is no late bus because _____.

And I am not sure because…

I'm sure it is insider stuff and…

Someone _____ and even that is difficult because it is hard to…it is sad…

…it is sad.

We are willing to do anything…

Parent outreach again and again, I am in school all the time, I am a _____ volunteer, so they can always find me and they know I will send my student in for help if needed, but how do you reach out to parents for whom…they are trying to deal with their survival issues and you can't expect them to focus too much on failing math grades when they are not sure they are going to be able to provide a meal. So, you know, these are huge issues and huge questions but I would rally like to raise awareness with the higher ups in the STEM initiative because if you only reach the kids who are already doing pretty well then not only will you not have good success in job placement you are not improving life involvement and in particular no jobs for young men means flight from the cities and the towns and the depopulation and then it spirals down and it is disheartening as you say, the programs that are target to one population but not to others and I know of many kinds who did very well but when they were not recruited and were not offered guidance by any of the higher education institutions _____ and that something I really think that state institutions ought to take more responsibility.

I think you and I had a discussion one day the top 10% you know you hear that there are new centers and it is obvious the top kids, the brainy one, the one who…they figure they are the ones who they want to put into this field but they were looking for some…they were looking for the two year kind of technology kind of things…

This is what I would say, one of my degrees is in technology and when I retired from the Air Force it was jet engineer operations and I was a flight chief and I had trained young men to go into that. But what you got to understand is your automotive mechanic right now, has to be able to run technical equipment, IT equipment. He has to or she has to be able to do diagnostics and use computer systems and has to be able to work on hybrid cars and hopefully the future hydrogen fuel cars and this is technical stuff. The person doing your heating, setting up your heating, he or she has to evaluate how much heating space and the type of heating that will maximize heating efficiency. All of the new furnace systems are furnace controlled. There are virtually none of the jobs we use to

consider low tech that are now all hi-tech So all of these young men and women, even if they want to go to a junior college have to be on top of it, they have to have math. They have to have that understanding of science.

Communication is huge, writing and speaking about science is so huge…

Well the students that I work with usually because they are in college they have demonstrated a certain aptitude in science and math and that is great, obviously they have had some great _____, but their biggest problem tended to be every time we were trying to communicate, trying to take all that awesome information that is in their head and get it down on paper and say it out loud and it was so hard to be able to do that and once you can get it out it is fabulous, you get this awesome information that is really right on insight on perspectives and _____ totally missing.

Where _____ you on the _____.

Well, _____ child work at _____ as administrator…

And she is a PR…

And you know I think because she is a parent, she has one little boy who may know the knowledge but gets so worried in the classroom or just do not like math and science at all, but, you know, come to find out especially with my one that is a senior right now and is struggling and actually is doing an adult ed math because at his school if you do the first half of the semester and you fail, then you have to make that credit up, the whole credit up actually, even though it is a half credit. So he is doing that but he was able to finally get into the technical center, loves the program he is in and actually, you know, will say math, things that he is doing is it measuring _____ graphic or whatever the program they are using and do you realize how much math they have been using. So I agree with you that it has got to somehow be exciting, it has got to be…

I has got to be _____.

Yes, _____ exactly.

The confidence as well because we did an acuplacer course at Capitol Area Technical Center which was all the vocational students and just, you know, they are in these vocational program, going to school, they have done everything they need to do and then they take the acuplacer so they don't have to take those intro courses like, trying to think of the word, but like, you know…

Prerequisites.

Yea, thank you, or just you know these courses that are going to cost money and time and they have the skills but then you are putting them in front of a computer and a test with no calculator and they are not good at math and they are not good at testing and brings up

all that stuff from before that gave them this wonderful program to figure out. So it is just…

There is so much.

And it is, miscommunication and misconception I think with counselors and school systems is to the students that go to the tech centers, they are not going to go to college. Well that is not really true. The majority of them realize how much they enjoyed that and want to seek it out more.

(all talking)

Talking about making sure that their work, trying to get the community college credits, easily transferred to the university because a lot of times they take courses, that is when…

Exactly.

Think about this, you can down _____, you can get a job $16 an hour, _____ if you have a lap top and that is just driving a tractor on the blueberry fields, because the GIF, GPS control, computer system control is how they distribute their fertilizers and pesticides and that is how they run the blueberry harvesters. It is all controlled. R.H. Foster, for example, their trucks is all GPS, GIF systems so they know where to deliver and go all the time. As fuel prices increase in the State of Maine a big industry that is just starting to catch on is greenhouses where we can grow without internal heat, 10 months out of the year, with internal heat 12 months out of year. And that is going to be much more efficient than flying strawberries from California the middle of the winter which requires a whole group of different technologies and computer systems in order to manage that hypo and as well as an understanding of basic biology and ecology in this system. So we can create and we have an ecology class at WA where we do have this hands on work and planted our greenhouses with peas and lettuce this week. But these are the think that you have to do to engage the students while working at community programs at our IT, technology program where we supply that, in order words, if you are going to do construction work, you better be able to do some geometry or the solar house is not going to be very _____ over run. I mean, so finding this and it is a new way of teaching we can engage these young men and young women where they are at.

Well I was surprised that in the U-Maine Technical Center which does a very good job is not represented here and I really would like to give a big kudo and I think that the technical centers even before you get to the community colleges and the technical centers are really a good choice for a lot of students but they are not, either not highly thought of or people just don't even know that they have that option and we have to change that within this initiative, it just cannot be about the college system, it has to start earlier.

On the governor's STEM council there is a gentleman from Sanford, from the technical center, _____ representative….

But it is one.

I know, (both talking) but I am saying that there is at least someone there that can be here today.

I expect the governor probably has somebody…

And somebody the conference, look at what we have today. We have had renown _____ engineer, we have had a medical surgeon, have we had anyone else from our day to day technologies and workings. I mean the focus is on the very few STEM jobs but actually it is much, much broader than that; much, much broader. I don't think we are doing a good job reaching out to everyone.

That is why we have these sessions and conferences to…it is only…we are scratching…we are scratching the surface here just trying to make those connections to reach out and to get people talking. It is a wonderfulness but it needs to be connected so people know more about it and aren't reinventing the wheel.

_____ frustration is I grew up as a foster child in down east, Maine. When I graduated from high school my guidance counselor, because I was low performance, said I should go into the Air Force because I wasn't really college material. And since then I have had five degrees, radial success and I am doing very, very well as a teacher. Well, I'm known around the state now. Just because of my passion for what I'm doing and I'm reaching all these kids, but it you just can't just turn to the top 4 or 5%.

I went to _____ High School which had plenty of connotations of it own, but I vented very well from the time I was there. But I remember getting a tour of, I can't remember which technical facility we went to, and thinking oh my God they do such cool stuff here, but like how cool is this, why aren't _____. And I remember saying something to my family, this is awesome, I want to take one of these classes and they said, no, (too low to understand) oh, I didn't know that there was a difference for that sort of thing. They presented it which was great, they presented it as just an alternative, there is this and then there is a school that you go to…

(unable to understand)

And, yea, just that signal is terrible. And then the…

And I had the same experience and then I went to college and I find out that there are the tech school for like nursing and I went to St. Joes and it was a great nursing school and they had all this extra preparation to go to a four year college because they had taken that and I had the same experience, where like this is really cool, but no you are on my college prep and…

College prep versus Capitol Area Technical Center or those kinds of…all of us even and in these school we were trained for a career specifically. You 're not just trained to be smart, you know, like I feel that is kind of what the idea is.

That doesn't seem to make much sense to me. They asked that we answer these questions, 207 and I am not good at keeping time…

…for Magnet schools, yea but people _____ by age.

Or charter schools.

That has led to a lot of complicated questions.

But right, charter schools and that is Washington Academy, basically we are in the State of Maine and I teach in one with a lot of success.

(all talking)

One thing I would like to say that I would like them to type up a list of who is here and _____. The introductions were good (background noise) 39 e-mails and reading them and how are we going to get back to people. So I am going to suggest that they make a contact list so that…

I have it…

Oh, you already have one, alright.

With a short synopsis of who we are, where we come from, what are interest is.

So can we do this because I have my lap top…

Right…

First of all thank you Vera and Abby for having brought us together because I think it is very important. I have to tell you this. This year we are changing our curriculum in science and I am finding that there are certain things that I have to do that are left handed than I use to do and I am finding a difference in some of the kids in my class that really don't (coughing).

So I will leave it at that. First one: How is this conversation and former understanding of what it looks like when we do state STEM teaching and learning well.

Well I think we all know that some things are working and somethings are not.

So what's working…

_____ said that when we are doing it well, you said hands-on…

Applied…

Applied…

And what practical approaches like at the tech centers.

Yes, if you want to be an electrician you have to know trigonometry, you have to calculate the run, the _____ wise, the electrical flow, have to, and what better way to teach now.

So applying to the real world type of thing.

Sure. Then they take an interest in it.

And if you can tell them money is involved, that's also…(unable to understand)

So, that is…

…that's how I introduced my acupuncture…

(All talking)

So we didn't just talk about the other kids who are in tech school, whatever, like we heard today that after 4th grade they do not want to do science stuff anymore, so my buy into this is my introduction to make sure that STEM is in to the younger kids as well because if we don't _____ early we are going to lose them.

Yea.

Teacher certifications for elementary you are required to have two math courses and two science courses, and you are required to have 18 hours of history and probably a college _____. Does that make any sense to you.

I am a product of that and it took a long time for me…I had to go off…what helped me was when Maine had a science _____ came on the scene. That is when I began to feel that I could do something in science because I had English and social studies as my minors and took as little math and science as I could because…I'm 62 so back then it was even worse than now I think. I think, you know, but I think that is something that they are talking about, they are kind of a certification issue and that is part of what I think the subcommittee that we are looking at.

So teacher certification. The word.

Thank you.

I have room for another one. Secondary to that we were required to have a degree.

Yes it is and you know where I tell elementary education because I thought you never knew enough about one subject and that is all you need to know about all the subjects. And it is harder I think than going in and being a specialist in one area. And we are the ones that have to get them and go again. So kids, doing science, like #1 just the doing of science, is that…

Yea,

Science and math, yea.

We spend unbelievable amounts of money in _____ computers which is nice, however, there are all kinds of science equipment that we can use over and over that is much more beneficial. If I am doing a research paper or something that is fine, but to do science you need to do it and get the kid outside doing it.

We have here in town, there is a public professor with an NSF grant and he brings the stuff, brings science into public schools and have the kids in his lab and doing science with them in the schools in 9th grade, but again that is not spoken about all that often in these types of conferences that there is that interplay and there has to be like hands-on, it cant' be like talking about doing science, they have to do it.

HHMI Christie who is running this with Anita, she is the coordinator for the HHMI here at Colby and I work with her and she brings science mentors every Monday afternoon to our after school program for the lower economic kids so every, as often as they can on Monday afternoons, the mentors come and do science with the kids.

But we need to go way beyond that.

So partnerships…

The down east Atlantic Salmon Federation or whatever the name is, I am not sure, we worked with them for Project Share. We take our ecology students out, we are actually helping them raise Atlantic Salmon from eggs to aug and releasing them, we are going out and doing water stream bed surveys where given the information to engineers and actually using student's information to replace culverts, put the stream beds back where they should and _____. Students are having an impact physically out doing it and there are other things we partner with too, but that is just an example of where we need to really start partnering where kids go out and actually do something that means something.

So maybe we need a building.

Absolutely, get them outside, that is where the learning is.

Our 4th graders are going to go spray the drainage for our service project and _____ unit that we are developing, so we are going to work with the water people, they are coming out and doing that.

How about a lot less testing and getting more kids outside.

Okay, so these are the partnerships look like the kids get involved and go out and do something that means…and again that means something and makes a difference.

(too low to understand)

That way they will make connections and they will be engaged in education.

And feel like they have a connection to something of science school and (coughing)

Okay, especially if they are in a situation where the parents have been out of work for a long time or they aren't…

Excuse me, could you please answer the question?

Sorry, I will be okay with the partnership.

We only have two more minutes. Given our different roles what specific steps can you take that will support STEM.

Engaging parents. It sounds like being there and working with (too low to understand).

My role as the Maine Science Teachers Association president is making sure that this information…making sure that the membership receives that information and also making sure that this kind of stuff is also at our conference every year that we hold one because STEM is highlighted at the conference.

Let me just say what is the most important part; I have a lot of friends around the state who are science teachers who would love to do the stuff that we do at Washington Academy. But we have administrative support, we have some unique things like small white busses that we can take a small amount of students and go. When you think of our campus we are doing things, we are rolling, we are going. Most administrators think it is too much work, they are concerned for insurance and anything else where we just keep them in the classroom, it is easier and simpler. The administrators are about half the support, the teachers who want to be creative and think outside the box…I just want to challenge the administration around the state to support the teachers.

Stop wearing out _____ (unable to understand).

Is there…I will continue to test the Board of Education and other things, but I do want to say that all and all I have been extremely happy with the Waterville Public Schools which

is not a complaint, people are doing super jobs but there is always room for improvement and that they love kids. Unfortunately they get left behind because they don't have an advocate. So I think we should all advocate for STEM and…

I would certainly like to see more of this next year at the next conference.

That the elementary school kids and up because there is such a divide between college age kids and the public schools and the recognition that involvement is fantastic whether or not you become a heart surgeon in the field or…

…just a good automotive mechanic.

She needs to _____ but we need other people to be in jobs.

Absolutely.

(unable to understand) 10%.

The technology is going to be there in everything. He just said harvesting blueberries. I didn't even realize that.

My son-in-law is an electrician and makes three times what I do.

I am glad he can be an electrician still. We need electricians.

Yea.

Good for him. Anything else.

Thank you, thank you so much. We can do wonderful things can't we.

We try.