Room 213 Session II
Facilitator: Laurie Mitchell
Name of Presenter(s): Share Templeton and Laurette Darling
Topic of Presentation: Connections to Support Stem Learning at K-6 and Middle School

I wanted to convene this conference, because I don't know about you guys, but when I sat there and listened to the presenters, it all sounded amazing—all the initiatives that are going on around the state. However, how that translates to our middle-level kids did not seem obvious to me. And I teach at a kind of unusual middle school; I teach at Moran-Cook Middle school. We have multi-age teams; I teach on a multi-age team, 6th-8th graders, they're all blended together and we use an integrated curriculum. We use the theme process; the kids pick a theme and then we use our learning results to help construct a curriculum for each particular tri-mester. So it's a very project-based learning schema. It's very differentiated, so we do a variety of STEM kinds of projects, but I still don't feel like we are getting at what we could be doing, as far as getting kids passionate about STEM or the sciences. So, I wanted to hear what other people are doing around the state and see if maybe we could create some sort of collaboration and at least have each other as resources. I know I just finished a toy design project where the kids had to design a toy powered by renewable energy, and they had to make their own windmills and waterwheels. Very very fun, but I still feel like I missed the boat somewhere. There was no math component to it and I have no idea really how I would go about doing that. So I just want to start the conversation about how we can further the STEM education at the middle schools.

I'm X, the state coordinator for project learning tree.

X, I teach 8th grade math and science at Greater Gloucester school.

X, administrator at Mahoney Middle School.

X, I teach a new STEM [?] and Design class at Memorial Middle School in S. Portland.

X, I teach technology education at Tripp Middle School in Turner.

I'm X; I teach 8th grade science in Falmouth.

I'm X, I represent both the Challenger Learning Center of Maine and the NASA Teacher Resource Center .

I'm X; teach 8th grade science at York middle school.

X, 6ht grade science in Wells.

X; I teach 7th and 8th grade science in Sanford.

X; I'm an applied technology teacher at Wells junior high.

X, I do Public Affairs for Texas Instruments.

X, teach 7th and 8th grade science at Sebasticook Middle School.

X; I'm the Maps Specialist for the Dept. of Ed.

X, I teach 7th grade math and writing and I teach science for 8th grade at Piscataquis Middle school.

Tell us who you are [to the convener].

I'm X and I'm a regular ed teacher at Randy Cook [?] community middle school. I teach 5 different subjects. I would love to hear what kind of STEM projects everyone has created for their students, what kind of successes you have had.

I'll start. In South Portland we got a National Semiconductor grant which allowed us to get a STEM coordinator, who came from the elementary schools and is an amazing math teacher. It also allowed us to hire two STEM teachers for our two middle schools in S. Portland. Our related art program in is flux, and we had and IT teacher that went up north to teach, so that vacated that spot. We had a home-ec teacher half-time and she moved to high school, so that vacated a full-time position for a related arts…which allowed us to put a STEM position in each middle school. And it has been amazing—the two STEM teachers have worked from the ground-up with little to no materials. But the excitement in the students…We've had parents say: Joey hopes to get STEM for another semester—because it was just a semester class. Kids who had not been engaged, I hear that they are fully engaged in this class. As eighth graders, we really had not seen a spark in some of these students. It's been a wonderful addition into our middle school; it has been a ton of work though. And that's how I've been trying to find a balance; I've wanted to integrate into more than just one 45 minute class for a student to have maybe half the year? Because if they're talking P.E., Reach, and band, they might not get STEM at all. So how do you integrate that more fully into the culture of the school, without scaring all your teachers off? Because it is a whole different way of teaching…I mean we did the Miranda-Cook [?] a few years back and that was hard enough for the teachers to hear: kids get to pick what they want to learn, then teachers have to create all of that within…how much time I'm not sure. How would you do that?

Well, the best amount of time is when, in the Spring, you know what you're teaching in the Fall—that's really nice. But that's only happened once. We usually have about 6 weeks to pull it together; the good thing about it is the collaboration piece. For example, I just did this whole unit on energy, with renewable energy. So I just put an email out to the staff beforehand, and said: I'm going to be teaching a unit on energy, who's got stuff? And within 24 hours, I've got 3 notebooks "this thick" sitting on my desk. So then I have to filter through. The kids picked amusement parks as their theme. I've got one teacher on my team who's helping kids with physics, so they could design segments of the rollercoasters. And I've got one teacher on my

team who's looking at the 7 Wonders of the Ancient world from an architectural design point of view and then translating that to some of the current amusement park rides, you know the designs of the Pyramids…and I do the toy design piece. So I look through the notebooks and see what fits with the theme. So there are a lot of resources, but you have to have people who are willing to share and you have to be able to put it together in a usable amount of time. It's tricky.

Well, I spent the last 6 years doing 6th grade math and science, [STEM teacher speaking] so I have a knowledge of what's being taught in the regular classroom. One of the things I hope to do going forward is to make that connection to the regular classroom. We do a lot of hands-on things that are not easy to do in the regular classroom, but I want it to be an extension of what's being taught not something completely different. Some of the stuff we've done so far: we've "stolen" from tri-engineering.org. They have a lot of basic projects; the materials list aren't outlandish. If you ask our STEM coordinator what our shopping lists are, they're pretty…well, all over the place, but nothing extensively expensive. We've done levies, catapults and zip-line carriers. Right now in some more involved projects, our 6th-graders are redesigning lobster traps; our 7th graders are studying heat transfer and are designing a new house for a penguin, kind of a global warming theme. The 8th graders are working with the sea perch program, which about building a robotic submarine. They're designing the sub, and we're actually going to put them in water and test them out this spring. We done a variety of things. What works best, in my opinion, is when we have said: here's the challenge, like in the catapult challenge. We said you have get this ping-pong ball launched from a specific spot for a specific distance, so we're not going just for distance, but a specific distance. And here's your bucket of materials. Come up with a couple of different designs, figure out which one you want to do and build it, test it, redesign. Even to be curious about it, to trust their own ideas. We talked about this in the fall; how many times in a science lab is there a predicted outcome? If you don't get the outcome, then sorry, you don't get to do it again. So the idea behind this class is to allow them to absolutely bomb, because then you can make improvements. So we build these challenges that are sometimes 10 days long, and in that time you've got them designing it, building it, testing it; they are re-building, re-designing…They're constantly working and it's all in groups of two or three. In the fall when we did these challenges, initially the kids were kind of scared, were unwilling to push the envelope. But now I have kids that I'd have all year and ones that I've only had since the break. And now, they're completely self-correcting. I'll come in and talk for five minutes at the beginning of class: here's what we're doing today, here's where you need to be by the end of class; make sure you're documenting things as you go along, and I step back. Now you walk into the room and it looks like absolute chaos; you've got 5 different groups doing 5 different things, balls flying around—but it's supposed to be that way. And I would say I've had 100% engagement and ZERO behavior issues, from anybody. When we try to ratchet back and try to do some more traditional basic types of learning, that's when the issues pop up because the kids don't have the freedom to be kids and try things out. So for me, getting kids excited is giving them open-ended questions. For a lot of people, teaching is going "this way", but for me it's presenting the challenge over there and saying: go get it.

I had a very similar experience with my toy project. I had a bunch of students who were so insecure with that [freedom]. I had wind-up toys and elastic toys. I just bought a bunch of stuff at the dollar store and had them flying for a few days, asking: how are these things powered and how could you reconfigure the power source so it could be renewable? I had to keep bringing them back to the idea that this is the challenge of your generation, so you guys have to figure it out. So we had this stuff flying around, and I told them we have to design a toy. And I had not too many….because I used Thomas Edison: 2000 times he tried to make that light bulb work and 2000 times he couldn't do it. We said that almost every class, so the kids knew it didn't have to work. They needed to have tried and tried it, tweaked it and shared with the class how they tweaked it. Then we had a wonderful time with presentations at the end, with students getting up and saying: I made it work! So-and-so was doing a paddle wheel over here and I got the idea of where to put the propeller on my plane—so those kind of conversations happened. But with others it was sometimes along the lines of : ugh, I'm trying to power my car with lemon batteries; I've got 8 lemons and it's still not running! So the kids are all in the class, sharing that information and sharing their whole critical thinking process, which is great! But I feel like the math component is missing and I don't know if you have figured that out yet.

Yes, as my principal likes to say: we not flying the airplane now, we're building it. That piece has been lacking coming from the regular classroom, the content piece. I've struggled with how much to push the content piece knowing they'll be getting it somewhere else, in the regular classroom. Going forward, I'd like to line up our projects with the science and math the kids are getting in the regular classroom, so it kind of extends what they're doing and is not just some random project.

What kind of contact time do you have with the kids?

I have 40 minutes a day, every other day.

I heard you say you were working with teens?

When I can.

He's on the "Related Arts Team" so it's the P.E./Arts/Music, and then he has one colleague at my school that he collaborates with.

But in the schools, we have two teams. There's a 2-person team and a 3-person team for each grade level and they do essentially the same curriculum. There's a little bit of freedom there, but the same major ideas. Having come from 6^{th} grade, with that background, it's easier for me to find challenges that are going to connect with that grade-level. But going forward I would like to do things that go across all 3 grades, as an extension of what we're doing.

I started out teaching Industrial Arts. One of the reasons I came to this conference is that I'm wondering: are you/they using the resources of tech-ed/industrial arts teachers? Twenty years

ago, Industrial Arts changes over to what administrators were calling “technology” which everyone thought was about computers—but really it’s not; it’s “applied technology,” taking math, science and engineering and incorporating those into what the students do. I may be able to help you quite a bit actually. In my classes at the junior high, they drew me into the sciences and we worked on a curriculum, and that’s what Maine Common Core came out of. We crossed the curriculum with the Maine Common Core and I was a member of the science staff. At that point in time, that many years ago, they suggested to us that we move from Industrial Arts to Technology Education, which I call Applied Technology. In my classroom, I did have 5-8th grade students in the class at the same time. Now, I have an autistic class in the morning, and some disenchanted students in the afternoon—trying to keep them in school. But in between, I have required courses where I teach 7th and 8th grade. In the 7th grade I teach a Force and Motion unit, which incorporates science and math. In the 8th grade I teach Engineering Design, which is similar to what we’ve been talking about. The kids are very independent and in 20 years I have never thrown a kid out of class. They love it, they want to be there, it’s experiential learning Most of it is incredible problem-solving. We talked about catapults. One really good one you could use is building a mouse trap. Chevers [?] uses it as their physics final exam for the seniors. It’s a great project, it’s not expensive and the math piece of it would be radius, diameter, circumference and there’s some measuring involved—redesigning, testing, self-assessment. What we’ve worked with runs the gamut from alternative energies to boat-hull design, to understanding up-thrust—all kinds of things that deal with physics. I don’t know if you’re familiar with the Usborne booklets that deal with science; you go through that and you can do just about anything that’s in there with young kids. But my point is—and I think there were at least 3 other guys that were Tech teachers—we’re actually a dying breed, because when they retire, the programs are dropped, which 20 years ago we were warned would be a big mistake, so now they’re bringing back the STEM, now STEAM and some other things. If you have a program like this in your school, I’d suggest you use it. The people are very knowledgeable about these types of things, hands-on, problem-solving. By nature, that what those programs do, and they’ve been doing it for 40, 50 years. So if you have that ability, use it; if not, if you could bring someone in, a volunteer that has those types of abilities, it really isn’t that costly. You can do things with toothpicks and balsa wood; you can go online and finds projects—the egg mobile, for example. It’s basically about safety design on a vehicle. You design a vehicle but it has to have a structural frame to hold all the moving parts and whatever else has to be there, and you design safety devices to go on this vehicle. It’s an awesome project; the kids love it. At this point they’re eighth graders and a lot of them will be driving soon. Now they see what can happen. There’s a lot of social aspects involved, and you get into the design stuff. Basically it’s the scientific method, the engineering method—big criss-cross really. It’s not rocket science, but it’s the opportunity to do these kinds of things. I only have the kids for 6 weeks, 3 days a week, and then I see another group. So I have them for about 18 classes. And what they do is amazing because they really love what they do. I guess I’m going to try to get involved because I think it’s important. I’ll work with the different grades in different tri-mesters, work with the science

teachers, be out of the box creative, forget about scheduling, forget about the curriculum—well not forget about the curriculum, but you've got to really modify it. Twenty years ago, they said: do what you want. My "better half" is doing the Perch program in Sanford and right now they're building [?] at the shipyard, and the navy engineers come right in—if you applied to the program—and they'll give you all the supplies for the program. In two weeks your kids will build a mini submarine. And that program is free—they come in and train the teachers, set up the program, everything.

What's that called again? Perch?

Sea Perch.

I'm going to do a little "yin and yah" and I'm going to start with the "joyful." If you want to build on a good catapult program, get a vice principal to wear a funny hat, put him on the other side of the building and build a catapult where the kids have gridded out where they think a water balloon's going to land. Have the principal tell them they're in A7 and each group gets a chance…they have to do the math. They have to use the c-tangent table; it's a gorgeous project. You can involve kindergarten-grade 2: wow, how'd that happen. It's something for them to look forward to. That basis is: try to establish a protocol where kids have something to look forward to, in whatever capacity it is—science, math, engineering, car-building, mousetraps—whatever it is. Our kids—and they can see it in their teachers—are held to task for being able to articulate what they understand. And you can have a lot of fun—and it sounds like your classes are really doing that—but it's a struggle to have them re-state what the question, write what they understand, write what they'd like to do again, in English, on paper. You understand what I'm saying?

Oh, absolutely.

If we're talking about the kids, and they have these needs, say for doctors…I can see them using the IPod to look up what incision to make, but [first]: what's an incision. The struggle I have…you know they say lateral, ventral—you've got to understand these things. So where do we pick up the piece, from maybe grade 3 through grade 9, that kids feel comfortable articulating what they understand in the written word—I think journaling is a good point, and to comfortably use a system in mathematics to solve a problem, like hitting their vice principal on the head with a water balloon with a catapult. And that's the struggle that I think faces middle school. And quite honestly we're losing a bunch of kids before they even get to grade 7 or 8. Even though they want to please their teacher, if it's a struggle to write things down so someone can respond to them, then it's a challenge. I love when we have days when the kids do this kind of stuff, but then you have to have them document it. And you may need to write back to them and say: well, this isn't quite what I saw. I think that feedback is important.

In my classroom, there's class time. There's the design lab and there the construction prototype lab; it's just what we call it—it's a shop. In the classroom, there is academic time. We go

through the whole engineering design process, from problem statement to research, developing their own ideas, brainstorming and coming up with solutions, with schematic drawings, the whole works, before they can even go into the lab. That means they end up with half the time in the lab; it's a real extensive thing. With the math piece with us, it's very basic. You were talking about catapults, we even did a trebuchet, which are brutal. We talked about wind speeds, etc. because it's all affected, gravity, wind speed. So you interject minor things into it. But we can't get into any depth because of the scheduling. I would love to be able to get more into it.

I'm a Tech Ed teacher too. That's basically my entire program. I get the kids for 12 weeks, and I see them for about 60 minutes every other day. My entire thing is set up for open-ended problem solving. They come in the first day, we do policy then move right on. For the 7th graders, their first thing is: I'm going to give you one sheet of paper and 6 inches of masking tape; you can do whatever want to as long as it comes out 3" wide by 3" deep by 2" tall and then we're going to crush it. The goal is to get 200 pounds. So then we get to calculate structure and we get to talk about forces move…For the 8th graders I do a bridge, again made out of paper because they can try it, throw it away and try something else. Then we move on and I teach some formal skill; I teach drafting. I teach math; I teach all those things in it. One of the projects—you were talking about a trebuchet or a catapult—I have it all set up very formally, then not. You have a problem statement; you need to research, design, construct, perfect a trebuchet to throw a marshmallow projectile the furthest distance. It must be of safe design and operation and no greater than 24 inches. They have 7 rules…safe design, size, must be a trebuchet rather than a catapult…they ask: what's that? I tell them: figure it out; you have a laptop. And they do. They have to calculate a given mass; they have to have a non-destri…[?] mechanical trigger, so that's a definition for them to figure out. They must use the sling and other materials they're given to work with. They have a set of research problems and words to define. They all go on Dictionary.com and then copy/paste. Ok, fine that's great. Then I ask them: define Newton's First Law for me. They reply: well….I….uh… I say: No; talk to me. And they don't get past that step unless they can articulate, at least in words, what they mean and get some concept behind it. Then they do some formal drawings of it, so there's math in that.

I want to add a couple of things here. I hear exactly what you're saying about making sure the students have a self-reflection piece that has to be done at the end of the project. I broke it into 3 pieces: design, build and demonstration. So the kids had to say what were the pitfalls and successes at each level of the project. Most students were pretty good about that, but again, the way we deliver curriculum, they get to self-reflect a lot. So maybe our kids are a little bit more comfortable with that. But I have a question for you guys, when we were talking about giving the kids carte blanche to go out there, design whatever they want, how many of you have kids go on the internet, find a design and just say: I'm going to do this. This is a challenge I have. It is HUGE. Our kids are now so web-focused and internet saavy. I took those designs and said: that's someone else's work, throw it away. You need to sit down with paper…or they could take that

design but need to rework the whole thing because I want a renewable energy source. Instead of just taking someone else's idea and creating it and saying: this is my thing.

We have a process already laid out. They have to do the research and it's very matter-of-fact for them. They have to come up with 3 different designs and I have to approve them: see these 2? They're the same thing? Try again. They are forced to try to come up with something on their own. The last step is to do that reflective piece where they have to articulate what they're going to do.

Ours is very similar to that. Every project that they do has to incorporate the designs, but it also has to incorporate mechanical engineering, structural engineering, or it could even be electrical engineering, depending on the project. I'm not a compute savvy person at all; I do not like them. So a lot of the things I've done over the years…I'll still look at a book, or I'll just make it up. So when they do their designs, they'll have to include some mechanical engineering; it could be a drive train. They have to come up with a structural design, so they have to build a structure to house whatever it is. When they do their brainstorming piece, to come up the best possible solution, they have to come up with 10 different brainstormed ideas. Now they're allowed to do the research and they can look at whatever they want. But choosing something right off the internet is difficult to do. You'll see a picture of their plan and then what they end up doing; it never turns out the same. When they get into the lab situation—there's a whole packet they have to do before they get there, it's their ticket into the lab—their designs are often not even close to what they end up doing because they've redesigned, redeveloped, redid. They're different. But I do agree that's we're on the same page. I just wish schools would push and use the resources they have. These people have been around for a while and those resources are big.

I know there are a lot of classroom teachers here and maybe some non-teachers too. From what I see in his school, from my school, and from what I've heard from you, when you're doing these kinds of activities in your classes, there are not a lot of behavior problems. There's a lot more engagement than behavior issues. So if we know that so well, then why are the programs that are achieving this, only 40 minutes or 60 minutes every other day? Why aren't they the regular ed classes? I mean, I'm a science teacher, so I'm a regular ed teacher…

They don't get tested on it.

It's not keeping me off AYP…not yet.

For me, this is preaching to the choir. But as one of the presenters was saying, you have got to take a huge leap to do what our previous principal did, because our school has been described as being on the "bleeding edge" and the not the "cutting edge" because we have taken a huge amount of negative publicity for doing what we do—yet we have that level of engagement with our students. So if we hear this and we know this about kids, how they're so much more engaged when there's something "real" why do we teach each science discipline in isolation? For example, I have a 14-year-old daughter who's interested in marine biology. I'm a geek, she's a

geek. February vacation, at 8:00 in the morning the 2 of us are sitting there watching a webinar from the Center for Ocean Research at UMO on hydro vents and we're just glued to the thing. The webinar's being run by a bio-geo-physicist. Then we go to another webinar on the north Atlantic algae bloom that's being run by a geo-chemist. So I sit back and say: so the minute you go out in the real world you're not just a biologist; you have to do chemistry to understand biology. You have to do physics to understand the ocean. So why does it continue to be: we do biology, then we do chemistry, then we do physics or the interesting thing of having a 14-year-old and looking at all the high schools around me, the high schools can't even agree on what order they teach those things in. So some of them have freshmen in chemistry, some of them have seniors in chemistry. It's very frustrating as a parent, but also as an integrated middle-level educator, to sit back and wonder why is our system so inflexible at this point, especially with all the research and all that we know about engaging kids?

In example of what you just said, we were studying off shore wind turbines, and wave energy. In order to do this you have to talk to scientists who study wave energy, but also engineers. The engineers and scientists work together. They study the waves and the currents to see if it's feasible. That first speaker from UMO was saying: I'm with you; I don't understand and I haven't understood it for a while. I think that the academic is good, but I was talking to a man who was at King [?] middle school and he was telling me about their test scores. But I would think that your test scores would be fine with this kind of program. You have to study a bit of history, you're going to need your English and your languages to present whatever it is you're working on. This gentleman said that his principal read studies that reported that test scores do go up when you do these kinds of programs because it's an incorporation of a lot of things. You have to practice—practice makes perfect—but you have to practice doing it this way.

I think part of it too is the knowledge base. I teach math and science. But I didn't go to school for math and science. I went to school for criminology….

I was a French teacher. I have a masters in French!

I was in the business world for 13 years and decided I needed a change. But middle school was not where I expected or what I expected it to be. But I do like middle school and we're doing a lot of changes too. We doing standard bates/base [?]. We're looking at risk. But it truly is how the Maine […?] results are broken up, how the core curriculum is broken up, and what the level of teachers' understanding is. I mean usually when you have a biology teacher, even though there is a lot of chemistry in biology, that's all they know to teach., 2 times out of 3 that's all they know to teach. In my middle school,--and I keep saying I'm kind of curious why we do it that way--we have 8th grade doing physical science, 6th grade does geology, 7th grade does something else. They take the test in 8th grade—the NECAPs—and I've got kids that started in March still saying: um, what's a biome? So I'm saying why don't we teach everything like STEM?

But that's just not how it works, unfortunately.

I really think the push behind the STEM initiative is to get that backing. I know my kids look at my like I'm a total genius; I'm not that smart, but I'm not that dumb either. But it's because I have such an open curriculum. The other day they were ranting about something and they ended up talking about how much fat is in their brain, because of something they said. They said to me: how do you know that? I said: your science teacher knows it too, but they said: we don't cover that. That was the upshot: since it's "not covered" they don't get to talk about it, where I get to have those conversations that go every direction and sideways. And the kids wonder: how do you know all this stuff? If we're going to keep saying that we want our kids to be lifelong learners, but their English teacher only talks about English and their math teacher only talks about math, and their science teacher only talks about science….

I think though that we'd agree—and it's almost 80 of us in this room—if we had a lesson, or a unit that really worked, it always incorporated all of the things that you mentioned: some student-initiated engagement, some content, some reflection, some building, some math…If you look at all the things you've taught, the sections that have worked best usually incorporate all of those parts—at least in my experience. The problem is that really deep curriculum development takes years of work and trial, recreating. So we don't really have to time, in our 45 minutes here and there, to do that, all that recreating. You see what's missing in your curriculum, say, it bases the toy or its prediction of what's going to happen, on math, and maybe that's not what the result is; but they've gone through the mathematical process to do that.

But I think a piece of that—and maybe I'm a Pollyanna—but I think your biology teachers knows a whole lot more chemistry than they would let on. If they were collaborating with the chemistry teacher…

There you go—collaborations!

That's the thing, to build time into our world so that instead of everyone teaching in isolation, they actually can have these kinds of conversations and be able to start thinking across disciplines. I mean isn't it sad when you talk about an integrated unit, you usually hear: oh, language and history, or science and math. But nobody ever thinks about science and history, because those don't seem to fit. But in reality they fit really well. My friend just did this whole history of ancient civilization, the seven wonders of the ancient world, and ended the whole thing with them building pyramids and other structures all over the classroom—which was a blast. She brought in the whole STEM piece, the math piece. But I think time is one of the big barriers too, and being stuck in this paradigm that is 130 years old, which says this classroom needs to be all 11 year olds and they are only capable of learning this topic at this point in time. Kids don't think that way. They're on the internet; they're everywhere.

Time has got us right now, but what this has been is a school model conversation because right now the model is struggling and I think our kids are paying for it.

I just want to point out that the reason that the NASA and Challenger Resource Centers exist is to support teachers. If anyone wants to get monthly emails or NASA resources, just see me and I can give you all kinds of information—and a lot of it is free and the things we charge for, we often have grants for. NASA is a huge resource.

To bounce off your NASA comment, I'm not with your NASA organization in the state, but I have worked for NASA as an independent contractor developing curriculum and the newest project we just finished is called "Expedition Earth and Beyond." It integrates the math, the writing and the science studying the geological features of the earth using astronaut photography. It was designed for middle-school students; you can work on the web on a Wiki space. You pick your research topic and we partner you up with a NASA scientist to be a mentor, oversee the work and have conversations with you and your students using the 5-E model [?] and scientific design for research. The tools are hard to come by and the resources are difficult to find sometimes, but I think part of what we're hearing here is if we have this integrated approach that can be delivered to us, we will be in much better shape. Is that what I'm hearing, some assistance in getting that concept? And you're right. It is a cultural change in our conscience that we're looking for at this time.

I think partially you're hearing that, and it's nice to hear people who understand that we're pressed for time and are willing to offer assistance in putting together the things that we want to do, but I think ideally and ultimately, I think people would like to be offered the time to do it themselves. It's almost belittling to think that we don't have the wisdom to do it on our own. We can; we just need people to think that what we could do has enough value to give us the time to do it. That's the frustration that I hear, at least in my district and some other districts. We just want to be given time; I could develop some amazing stuff. I have it in my head, but I have no time to put it on paper and develop how I'm going to put it into practice in my classroom.

We keep telling the kids to try, and if they fail, pick up and try again. How many of us are willing to do that in the classroom: I had this idea…oh, it didn't work but I'll change it next tri-mester.